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BEING

RECORDS OF ZOOLOGICAL LITERATURE

RELATING CHIEFLY TO THE YEAR

1905.

BY D. SHARP, R. LYDEKKER, R. BOWDLER SHARPE, IGERNA B. J. SOLLAS,
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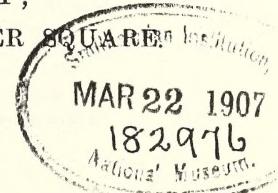
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BY D. SHARP.

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INTRODUCTION.

THE number of titles this year is 1669, contrasting with 1549 last year.

KELLOGG's Introduction to North American entomology (834) is the only work of very wide scope we have to notice this year. BLANCHARD's work (124) on mosquitoes is intended specially for those who are not general entomologists, and will be found very useful by medical officers and others who have to do with *Culicidae*.

In the monograph of *Heliconiidae* by STICHEL & RIFFARTH (1452) a most complicated nomenclature is introduced; the species are arranged in Sections and Cohorts, each one of which has a name. As the name has a plural termination we may presume that it cannot be considered as a subgenus and we have therefore not specially recorded these terms, they being merely substitutes—and it would appear of a superfluous nature—for the numerals and letters ordinarily used in the arrangement of species. Besides this a trinomial or a quadrinomial nomenclature is used for each of the species.

The second part of the late Prof. PACKARD's Bombycine moths (1131) calls for special notice: though ostensibly devoted to the *Ceratocampinae*, it includes some introductory chapters containing much matter of great general interest; the wealth of illustration gives an additional charm to the work.

The first Volume of the butterflies of the Fauna of British India has appeared and is highly spoken of; BINGHAM (119). Another Volume of the British Museum Catalogue of *Lepidoptera* has appeared; HAMPSON (715). ALDRICH's catalogue of N. American *Diptera* (14) and BECKER & BEZZI's catalogue of Palaearctic flies are very valuable. LEWIS' catalogue of *Histeridae* (951) shows that the described species have more than doubled in number since 1868, the date of the corresponding Volume of the Munich catalogue of *Coleoptera*.

M. THÉRY's work on Madagascar Buprestidæ describes many new species, and includes a discussion on the origin of the fauna of Madagascar. ENDERLEIN's (497) revision of two divisions of *Psocidae* is another good contribution; and JOHANNSEN gives us an important work on N. American *Chironomidae* (820). ESCHERICH's study of *Lepismatidae* shows the extraordinary development of knowledge that has occurred in the past 30 years. LASS's paper on the flea (918) is of more general interest than its title would lead one to expect; besides its anatomical interest it also deals with metamorphosis and habits.

VERHOEFF (1539) has given us an important paper on the morphology of the head, based on a study of the lower orders.

Voss's memoir (1555) on the thorax of *Gryllus* contains much matter of morphological importance concisely stated: it is lengthy but it touches on many points. He has a good phylogenetic table of the winged Insects: and promises a paper in which development is to be dealt with.

In anatomy HOFFMANN's study (753) of the mouth-parts of *Tomocerus*, and KULAGIN's (901) of *Culicidae* are each valuable. The second of these memoirs is accompanied by some very thoughtful considerations as to a great polyphyly in Insects. WANDOLLECK (1565) contributes a study of the abdomen of the ♀ in *Coleoptera*; although not based on a very large number of examples, it is in other respects of considerable value. We have a summary of the structure and function of Malpighian tubes from VENEZIANI, together with new observations and elucidations (1536). SCOTT

gives (1371) a very interesting sketch of the tracheal system, including the anal structures, of a developing Libellulid dragon fly.

Of two papers on the sense organs, the one by RÖHLER (1288) deals with the subject in general, and contains much interesting matter, while that by SEILER (1375) discusses the Ocelli of *Ephemeridae*. Both touch also on the question of function, though rather lightly. PHILLIPPS contributes a valuable paper on the compound eye (1164). POPOVICI-BAZNOȘANU (1211) has studied the structure of the dorsal vessel in *Chironomus* and a few other insects. RÄDL (1230) has an interesting discussion of the sense of hearing.

FABRE's new volume (533) is chiefly devoted to spiders, but it includes two short chapters on *Coccidae*. BUTTEL-REEPEN has an article on Insect-sociology (224). We owe to DOFLEIN a most interesting account of the proceedings of *Ecophylla smaragdina*, the weaver-ant (436), while HUBER's account (791) of the mode of establishing a colony in the case of the leaf-cutting ants is quite fascinating. The origin of slavery in ants is discussed at length by WHEELER (1619) and WASMANN (1579, 1580). FERTON gives us some valuable notes on the habits of *Hymenoptera*; the case of parasitism in a *Pompilus* being of special interest (558). Some very interesting information as to the Natural History of a Singhalese species of *Termitidae* is given by DOFLEIN (437). Dr GOELDI has published a very considerable contribution to the Natural History of Brazilian mosquitoes (672).

GROSS (699) has written on the ovaries of *Mallophaga* and *Anoplura*, and finds them to be extremely similar. He discusses the classification of these groups, and concludes that there is but little ground for placing *Anoplura* with *Hemiptera*.

BORDAGE has produced a very interesting treatise on autotomy and regeneration (135), and THIENEMANN (1491) makes an important contribution by his sketch of the biology of the pupa of *Trichoptera*, and accompanies it with a very complete bibliographic list.

SILVESTRI gives a preliminary account (1393) of an extraordinary case of germinogony, accompanied by larval dimorphism. HEYMONS (745) gives a brief sketch of the peculiar embryology of *Machilis*. Miss FIELDE (559) contributes a valuable set of observations on the progeny of virgin—chiefly worker—ants.

Miss STEVENS (1449) gives us a number of interesting observations as to the very earliest processes of ontogeny in those extraordinary creatures *Aphidae*.

In Variation we have an important memoir from ENTEMAN on the colour and pattern of *Polistes* (518). PICTET has given the results of his experiments as to the variation produced by changing the food of Lepidopterous larvae (1198). He experimented with 4 or 5000 individuals of 21 species of Swiss Lepidoptera. The part of his work relating to humidity is less conclusive.

The memoir by PETERSEN (1155) on the sexual organs, requires careful consideration from all Lepidopterists, as he is far from considering previous work exhaustive, and makes various suggestions having a very wide bearing. He also has a paper (1156) to exemplify his views as to the origin of species by physiological isolation, by the case of *Hadena adusta*; the variation of the male genitalia being illustrated by photographs.

JORDAN's work (822) should be read in conjunction with PETERSEN's; he discusses geographical and nongeographical variation. The two works emphasise the necessity of a thorough study of the variation of sexual organs, both writers apparently taking it for granted, that disparity in the copulatory organs prevents copulation. A hypothesis which is by no means established, though the assumption is far from new.

The most remarkable of the Economic work of the year, is the series produced as Report of the Hawaiian Sugar Planters' Association by

PERKINS (1149-1154) and others. They include a great deal of matter of interest to the Naturalist as well as to the Economist. Mr WASHBURN's (1577) plan of devoting an annual Economic report to the insects of one Order will prove of value if completed, as it would soon provide a Manual of Economic entomology for the State, in place of the desultory repetitions that now abound in this department of Entomology. This system he says was inaugurated by his predecessor. The part published this year is a good brief guide to the study of *Diptera*.

SCHUCHERT & BUCKMAN (1353) have promulgated a system of nomenclature of types, which is unnecessarily complex, owing to their having confounded three categories, under the term type.

HANDLIRSCH has given us an interesting sketch of BRAUER's scientific career (724).

The Recorder has nowhere met with a new entomological periodical in Bohemian called *Casopis Ceské Společnosti entomologické*. An account of its contents for the year 1905 is given in *Zool. Zentrbl.* 1905, p. 809.

The question of "publication" is one that calls for serious consideration. Does the printing and selling of two or three copies constitute of itself publication? And if not, where is the line to be drawn between this and an authoritative list of recognised channels of communication between Zoologists? The number of doubtful publications is now so great that every Recorder would be glad to know that they are not to be encouraged, as he finds it impossible to get a sight of many such.

I. TITLES.*

1. ABEILLE DE PERRIN, E. DE. Description d'un *Trechus (Anophthalmus)* nouveau de France. Bull. Soc. ent. France 1905, p. 19. [*Coleoptera*.]
2. —. Description d'un *Bythinus* nouveau de France. T. c. p. 42. [*Coleoptera*.]
3. —. Descriptions de trois *Buprestides* méditerranéens nouveaux. T. c. pp. 207, 208. [*Coleoptera*.]
4. —. Description d'un nouveau *Coleoptère* aveugle de France. T. c. p. 208.
5. —. Notes biologiques sur *Siettitia balsetensis*. T. c. pp. 225-227. [*Coleoptera*.]
6. ADAMS, C. F. On the North American species of *Oscinis*. Ent. News Philad. xvi, pp. 108-111. [*Diptera*.]
7. ADAMSON, C. H. E. Catalogue of butterflies collected in Burmah by Lt.-Col. C. H. E. Adamson, C.I.E., up to the end of 1895 and presented by him to the Museum of the Natural History Society of Northumberland, Durham and Newcastle-upon-Tyne. Tr. Northumb. Soc. i, pp. 155-189. [*Lepidoptera*.]
8. ADELUNG, N. von. Symbola nova ad cognitionem *Blattodeorum (Orthoptera)* Africæ orientalis. Annuaire Mus. St. Petersb. ix, pp. 417-489.
9. —. Symbola ad cognitionem faunæ *Orthopterorum* Rossiæ. Op. cit. x, pp. i-v.

* An asterisk prefixed to a quotation indicates that the recorder has not seen the Journal or Work referred to.

10. [ADELUNG, N. v.]. [Review of] Verhoeff; zur vergleichenden Morphologie und Systematik der *Embiiden*, zugleich 3. Beitrag zur Kenntnis der Thorax der Insecten. Zool. Zentrbl. 1905, pp. 580-585.
11. ADIE, J. R. & ALCOCK, A. On the occurrence of *Anopheles (Myzomyia) listoni* in Calcutta. P. R. Soc. London 1905, pp. 319-321. [Diptera.]
12. AIGNER-ABAFTI, L. v. Über *Aporia crataegi* L. Zeitschr. Insbiol. i, pp. 204-209. [Lepidoptera.]
13. —. Die Tagfalter Ungarns. Rov. Lapok. 1905, pp. 4-12 etc. [Lepidoptera.]
Tables in Hungarian.
14. ALDRICH, J. M. A catalogue of North American Diptera (or two-winged flies). No. 1444. Smithson. Collect. (pt. of Vol. xlvi), 680 pp. Noticed Nature lxxii, p. 317. Reviews: by MELANDER, Ent. News Philad. xvi, pp. 241-243; by BRUES, Science xxii, p. 176; by DE MEIJERE, Zool. Zentrbl. 1905, p. 755; by C. W. J., Psyche xii, pp. 77, 78.
15. —. A contribution to the study of American Dolichopodidae. Tr. Amer. ent. Soc. xxx, pp. 269-286. [Diptera.]
16. ALFKEN, J. D. Die von P. Knuth auf seiner 1898-99 unternommenen Reise nach Java, Japan und Kalifornien gesammelten Lepidopteren und Hymenopteren und die von diesen besuchten Pflanzen. Abh. Ver. Bremen xviii, pp. 132-138.
17. —. Zur Kenntnis einiger nordwestdeutscher Bienen. T. c. pp. 69-76. [Hymenoptera.]
18. —. Die Förstersche Monographie der Bienen-Gattung *Hylaeus* F. (Latr.) = *Prosopis* F. und die *Prosopis*-Sammlung Försters. T. c. pp. 108-124. [Hymenoptera.]
19. —. Über einige Bienen-Arten Thomson's. T. c. pp. 125-128. [Hymenoptera.]
20. —. Die Gruppe der *Andrena varians* K. T. c. pp. 129-131. [Hymenoptera.]
21. —. Neue und wenig bekannte *Prosopis* Arten. Zeitschr. Hym. Dipt. v, pp. 91-95. [Hymenoptera.]
22. —. *Melitta nigricans* n. sp., eine neue deutsche Biene. T. c. pp. 95, 96. [Hymenoptera.]
23. —. Ueber einige afrikanische *Prosopis*-Arten. T. c. pp. 146-150. [Hymenoptera.]
24. ANDRÉ, E. *Mutillides* nouveaux ou peu connus de l'Ancien monde et de l'Australie. Zeitschr. Hym. Dipt. v, pp. 201-216, 265-277. [Hymenoptera.]
25. —. Nouvelles espèces de *Mutillides* d'Amérique. T. c. pp. 361-376 (incomplete). [Hymenoptera.]
26. —. Description d'un genre nouveau et le deux espèces nouvelles de fourmis d'Australie. Rev. Ent. franc. 1905, pp. 205-208. [Hymenoptera.]
27. —. Diagnoses de deux espèces nouvelles de *Mutilles* du Transvaal. Bull. Soc. ent. France 1905, pp. 24, 25. [Hymenoptera.]
28. —. Catalogue analytique et raisonné des *Lépidoptères* de Saône-et-Loire et des départements limitrophes. Deuxième partie. *Sphinges, Bombyces*. Bull. Soc. Autun xvii, pp. 177-267, pls. viii bis-xii.

29. ANNANDALE, N. The egg and early larval stages of a *Coreid* bug, probably *Dalader acuticosta* Amyot and Serv.; with a note on its *Hymenopterous* parasite. Tr. ent. Soc. London 1905, pp. 55-59, pl. viii.
30. ARROW, G. J. On some Oriental *Aphodiid Coleoptera* of the *Rhyparus* group, with description of a new genus. Ann. Nat. Hist. (7) xv, pp. 534-539.
31. ASHMEAD, W. H. Additions to the recorded *Hymenopterous* fauna of the Philippine Islands, with descriptions of new species. P. U. S. Mus. xxviii, No. 1413, pp. 957-971.
32. ——. New *Hymenoptera* from the Philippines. Op. cit. xxix, No. 1416, pp. 107-119.
33. ——. New genera and species of *Hymenoptera* from the Philippines. T. c. No. 1424 pp. 397-413.
34. ——. New *Hymenoptera* from the Philippine Islands. Canad. Ent. 1905, pp. 3-8.
35. ——. A new *Pezomachus* from Italy. T. c. p. 142. [*Hymenoptera*.]
36. ——. A skeleton of a new arrangement of the families, subfamilies, tribes and genera of the ants, or the superfamily *Formicoidea*. T. c. pp. 381-384. [*Hymenoptera*.]
37. ——. A new *Thrips* from the Philippine Islands. Ent. News Philad. xvi, p. 20. [*Thysanoptera*.]
38. ——. Two new *Mymaridae* from Russian Turkestan. T. c. pp. 213, 214. [*Hymenoptera*.]
39. AUEL, H. Messungen an *Lepidopteren* (1905). Zeitschr. Insbiol. i, pp. 499-502.
40. AURIVILLIUS, C. New African *Lasiocampidae* in the British Museum. Tr. ent. Soc. London 1905, pp. 313-326, pl. xvi. [*Lepidoptera*.]
41. ——. Lieutenant A. Schultz's Sammlung von *Lepidopteren* aus West-Afrika. Arkiv Zool. ii, No. 12, 47 pp., 6 pls.
42. ——. Fam. *Circulionidae*. Jägerskiöld exp. No. 10α pp. 16, 17. [*Coleoptera*.]
43. ——. *Hymenoptera*, Fam. 3-6 (*Vespidae*, *Mutillidae*, *Scoliidae*). Ent. Tidskr. xxvi, pp. 209-240.
44. AUSTAUT, J. L. Notice sur une nouvelle espèce du genre *Satyrus*, ainsique sur deux genres nouveaux de la famille des *Sphingides*. Ent. Zeitschr. Guben xix, pp. 25, 26. [*Lepidoptera*.]
45. AUSTEN, E. E. The distribution of the Tsetse-flies (Genus *Glossina* Wiedemann, as at present known). Rep. Sleeping Sickness Comm. Royal Soc. No. vi (1905), pp. 278-282, map.
46. ——. Supplementary notes on the Tsetse-flies (Genus *Glossina* Wiedemann). Thompson Yates Lab. Rep. vi, pp. 101-112. [Reprint from Brit. Med. J. 1904.]
47. ——. A new subspecies of *Glossina palpalis* Rob.-Desv., the disseminator of sleeping sickness. Ann. Nat. Hist. (7) xv, p. 390. [*Diptera*.]
- 47A. ——. Two additional British species of the *Dipterous* genus *Erigone* Rob.-Desv. Ent. Mag. 1905, pp. 57-60.
48. ——. A *Dipterous* enemy of English hothouse grapes. T. c. pp. 276-278.

49. AXELSON, W. M. Einige neue *Collembolen* aus Finland. Zool. Anz. xxviii, pp. 788-794.
50. BACCHI, P. & RAZZANTI, A. C. Contribuzione allo studio della teratologia entomologica. Riv. Ital. Sci. Nat. xxv, p. 131. [Coleoptera.]
51. BAGNALL, R. S. Notes on some additions, etc., to the Coleoptera of the Northumberland and Durham district. Tr. Soc. Northumb. i, pp. 224-247.
52. —. *Triplax bicolor* Gyll. a species of Coleoptera new to the British Catalogue. Ent. Mag. 1905, pp. 86, 87.
53. BAKER, C. F. The classification of the American Siphonaptera. P. U. S. Mus. xxix, No. 1417, pp. 121-170.
54. —. Fleas and disease. Amer. Natural. xxxix, pp. 507, 508.
55. —. Fleas and disease. Ent. News Philad. xvi, pp. 143, 144. [Aphaniptera.]
56. —. Homoptera. On the *Gnathodus* species of the *abdominalis* group. Invert. pacif. i (1903), pp. 1, 2.
57. —. A new genus of the *Typhlocybini*. T. c. p. 2. [Homoptera.]
58. —. The genus *Erythria* in America. T. c. p. 3. [Homoptera.]
59. —. New *Typhlocybini*. T. c. pp. 5-9. [Homoptera.]
60. —. Notes on *Macropsis*. T. c. pp. 9-12. [Homoptera.]
61. —. Reports on Californian and Nevadan Diptera, I. T. c. pp. 17-39.
I believe the numerous new species are all by COQUILLETT.
62. —. Two new Siphonaptera. Op. cit. (1904), pp. 39, 40.
63. —. Second report on Pacific slope Orthoptra. Op. cit. (1905), pp. 71-83.
Includes descriptions by REHN of three new species.
64. —. Notes on Neuropteroid Insects of the Pacific coast of North America, with descriptions of new species by NATHAN BANKS. Op. cit. i, pp. 85-91.
65. —. New Western *Mutillidae*, I. T. c. pp. 93-98. [Hymenoptera.]
66. —. New Western *Mutillidae*, II. T. c. pp. 111-119. [Hymenoptera.]
67. —. Fleas and disease. Science xxii, pp. 340-342.
Reference is made to a paper by HERZOG in Bull. Lab. Manila, No. 23, not seen by the Recorder.
68. BALDUCCI, E. Nota intorno all' *Arpyia vinula* Ochsen. Bull. Soc. ent. Ital. xxxvi, pp. 117-122, 1 pl. [Lepidoptera.]
69. BALL, E. D. Some new Homoptera from the South and South-west. P. Soc. Washington xviii, pp. 117-120.
70. —. New species of *Phlepsius* and related genera. Canad. Ent. 1905, pp. 209-212. [Homoptera.]
71. BANKS, N. Descriptions of new species of Neuropterous insects from the Black Mountains, N. C. Bull. Amer. Mus. xxi, pp. 215-218.
72. —. New Trichoptera from Japan. P. ent. Soc. Washington vii, pp. 106-112.

73. [BANKS, N.] New genera and species of *Perlidae*. *Psyche* xii, pp. 55-57.
 —. [See also BAKER (64).]
74. BARBER, H. S. Illustrations of an undetermined *Coleopterous* larva. *P. ent. Soc. Washington* vii, pp. 117-120.
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- Blackberry crown borer, *Bembecia* in Washington, LAWRENCE, pp. 117-119, Ent. News Philad. xvi.
- Brachychiton populneum*, insects of, FROGGATT (612).
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- Casuarina attacked by *Arbela*, FISCHER (571).

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N.B.—The numbers in brackets refer to "Titles"; by their means it is intended to give a reference to every memoir containing a notice affecting the entomological fauna of each of the twelve regions here adopted. But synomymical notes and changes of systematic position are not included in these references. In addition to giving references to titles of works that actually add to the faunistic record of a region, there are also comprised references to a large number of works on local fauna, or "stations." In such cases the reference is, as a rule, made direct to the original work, not to our title-numbers, many of these local faunistic notes not being included at all in our list of titles.

In this Faunistic division varieties are not included: neither is a new genus (unless it is also a n. sp.), nor synonymy. When no subordinate locality is mentioned in connection with a memoir, it is to be understood that it refers to several divisions of the region indicated by the immediate subheading.

GENERAL.

- Importance of distribution, SPEISER (1431).
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 Distribution of *Lepismatidae*, ESCHERICH (525).
 Geographical distribution of *Trichoptera*, ULMER (1520).
 Distribution of *Coprophagous Lamellicorns*, KOLBE (878).
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1. ARCTIC AND ANTARCTIC.

- HAMPSON (715); Arctic America, Novaya Zembla, *Hadeninæ* n. spp.

2. INSULAR (including NEW ZEALAND).

- Azores. *Lepidoptera*, *Noctuidæ*, 2 spp. n., *Geometr.*, 2 spp. n., *Scoparia*, 4 spp. n., WARREN (1575). *Orthoptera*, BOLFVAR (131), *Xiphidium* n. sp.
 Madeira: *Coleoptera*, FAUVEL (548), *Dromius*, 2 spp. n.; REITTER (1244) n. g. *Tenebrionidæ*. *Hymenoptera*, *Diapria* n. sp., KIEFFER (842). *Lepidoptera*, HAMPSON (715), *Hadeninæ* n. sp.; *Tephroclystia* sp. n., WARREN (1575).
 Canary Ids.: *Coleoptera*, SHARP (1385), *Oriopephalus pinetorum*.
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 St Helena: *Lepidoptera*, HAMPSON (715), *Hadeninæ* n. sp.

Galápagos: *Lepidoptera*, *Sericosema* n. sp., WARREN (1572).
 Liou-Kiou Ids.: *Coleoptera*, BOILEAU (126) *Nigidius* n. sp.
 Bonin Ids.: *Homoptera*, DISTANT (422), *Diceropyga* n. sp.
 Hawaiian Ids.: *Hymenoptera*, PERKINS (1154), *Polynema* n. sp.
Lepidoptera, HAMPSON (715), *Hadeninae* n. sp. *Diptera*, PERKINS (1153),
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 Marianne Ids.: *Hemiptera*, SCHOUTEDEN (1340), *Coleotichus* sp. n.
 Caroline Ids.: *Hymenoptera*, FRIESE (602), *Megachile* sp. n.
 Louisiade Arch.: *Coleoptera*, ARROW (30), *Rhyparus* sp. n.; LEWIS (954),
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 Woodlark Id., S. E. Island: *Coleoptera*, HELLER (736), *Pantorhytes*,
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Pidorus n. sp.
 Solomon Ids.: *Lepidoptera*, HAMPSON (716), *Asura*, 3 spp. n.; HAMPSON
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Epiplema, 7 spp. n., *Banisia* and *Striglina* sp. n., WARREN (1574).
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 Bismarck Arch.: SZÉPLIGETI (1466), *Iphiaulax* sp. n. *Hemiptera*,
Tibicen n. sp., KUHLGATZ (899). *Homoptera*, RÜBSAAMEN (1315), Galls,
Psyllidae, *Aphidae*, *Coccidae* n. sp. *Pyrgomorphidae*, BOLÍVAR (130),
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Circulon. Auckland Ids. n. g. *Hymenoptera*, FOREL (590), *Formicidae*,
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 HAMPSON (715), *Hadeninae* n. spp.; HAMPSON (716), *Morrisonia*, 2
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3. PALÆARCTIC REGION.

(a.) Collective: i.e. papers referring to more than one of
 the following sub-divisions, *c—h*:

China, with the exception of Mongolia, is included in "Asia," as is also Japan.

Coleoptera. Statistics of Koltze's coll. of palæarctic *Coleoptera*, Deutsche
 ent. Zeitschr. 1905, pp. 55, 56. Pp. 35–45 Munchen Kol. Zeitschr. iii

give localities for a very large number of species European Coleoptera, by numerous authors. BERNHAUER (102), *Staphylinidae*, 18 spp. n. DU BUYSSEN (226), *Mantchuria*, *Agriotes* n. sp. DESBROCHERS (399), *Magdalis*, revision. LAPOUGE (913), North Mongolia, *Carabus*, short list. LUZE (993), *Lathrimeum*, 4 spp. n. LUZE (994), *Acidota*, 3 spp. n. PETRI (1157), *Lixus*, table, 4 spp. n. PIO (1181), *Cerambycidae* n. spp. PIO (1173), Persia, *Polyarthron*, *Leptura*, *Dorcadion* sp. n. PIO (1184), *Limichus*, *Acmadera*, *Stenosis*, *Abdera*, *Galerucella* sp. n., *Curculionidae*, 5 spp. n. PIC (1187), numerous localities, various families, 21 spp. n. PIO (1191), Algeria, *Prionolixus* sp. n., W. Asia, *Desimia*, *Rhagonycha*, *Hymenalnia*, *Tychius* sp. n. PIC (1195), Greece, Palestine, Turkestan, *Eriotomus*, *Dictyoptera*, *Rhagonycha*, *Anthicus*, *Cyclomias*, *Collimus* sp. n. REITTER (1244), *Tenebrionidae* n. genn., n. spp. REITTER (1245), *Elateridae*, tables, *Athouina*, 36 spp. n. REITTER (1248), *Epicauta*, table. REITTER (1249), 8 spp. n. REITTER (1254), 10 spp. n. REITTER (1256), *Bothynoderes*, 4 spp. n. SCHILSKY (1331), *Bruchidae*, 4 spp. n. WAGNER (1556), S.E. Eur. and Caucasus, *Apion*, 2 spp. n. ZAITZEV (1649), East Siberia and Turkestan, *Hydroporus*, 2 spp. n. ZAITZEV (1650), Russian Empire, *Haliplidae* and *Dytiscidae*, localities.

Hymenoptera. FRIESE (611), Russian Empire, *Bombus*, 7 spp. n., *Psithyrus* sp. n. KIEFFER (840), *Proctotrypidae*, general work, many n. spp. KOHL (874), Mediterranean and Irkutsk, *Crabro*, 5 spp. n. SZÉPLIGETI (1467), *Ichneumonidae*, 14 spp. n. SZÉPLIGETI (1465), Spain, Hungary, *Ophioninæ*, 2 spp. n.

Lepidoptera. HAMPSON (715), catalogue of *Hadeninæ*, n. spp. PÜNGELEN (1221), Centr. Asia, *Pseudohadena*, 2 spp. n., *Sesia*, 2 spp. n., Palestine, *Metopoceras* sp. n. Vladimar Bay, *Rhopalocera*, LANG, pp. 122-124, Entomologist 1905.

Diptera. BECKER & BEZZI (90), catalogue vol. iv. HERMANN (740), *Asilidae*, 11 spp. n. Pekin, *Systropus*, see Asia.

Hemiptera. HORVÁTH (774), Hungary and Egypt, *Berytidae*, 2 spp. n. HORVÁTH (775), *Ommatidiotus*, 4 spp. n. HORVÁTH (777), *Tingitidae*, 17 spp. n.

Trichoptera. ULMER (1517), Centr. Asia and Amurland, 5 spp. n.

Thysanura. ESCHERICH (525), Sevastopol, Athens, Egypt, Tunis, Persia, Transcaspian, *Lepismatidae* n. spp.

(b.) Europe, collectively.

Insecta. Introduced insects in Europe, their distribution, DICKE (415).

Coleoptera. REITTER (1250), *Leistus*, 3 spp. n. REITTER (1255), Bosnia *Anophthalmus*, Caucasus *Rhinosimus*, Herzegovina *Rhizophagus* sp. n.

Hymenoptera. KONOW (883), *Tenthredinidae*, 3 spp. n. MAYR (1017), France and Austria, *Decatoma*, 2 spp. n., Germany, *Perilampus* sp. n. SCHMIEDEKNECHT (1334), *Ichneumonidae*, 40 spp. n.

Diptera. KRAMER (888), *Sarcophaga*, 2 spp. n.

Orthoptera. Synopsis of Orth. of W. Europe, continuation, BURR, Ent. Rec. xvii, pp. 10 etc.

(c.) British Islands.

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DONISTHORPE, Ent. Rec. xvii, 67. *Dinarda hagensi*, novelty, DONISTHORPE, p. 181, Ent. Rec. xvii. *Hadrotoma nigripes*, novelty, ELLIS (490). *Dacne fowleri* sp. n., *Læmophlæus monilis*, *Melanophthalma distinguenda*, novelties, JOY (824). *Quedius variabilis*, novelty, NEWBERY (1098). *Criocephalus rusticus*, novelty, D. SHARP (1385). *Tetroptium*, 2 spp. n., D. SHARP (1386). *Tetroptium [crawshayi]* at Leighton Buzzard, CRAWSHAY, p. 223, Ent. Mag. 1905. *Amara anthobia*, novelty, W. E. SHARP (1389), and CRAWSHAY, Ent. Mag. 1905, pp. 159-161. *Silvanus mercator*, novelty, TOMLIN, p. 37, Ent. Mag. 1905; NEWBERY, t. c. p. 69. *Col.* of the Eastern Counties, table, MORLEY (1068). *Omophlus betulae* imported, JANSON, p. xxxi, P. ent. Soc. London 1905. Retrospect of a Coleopterist for 1904, Ent. Rec. xvii, pp. 29-34. *Coleoptera* in 1905, DONISTHORPE, Ent. Rec. xvii, pp. 291-293. Scrutiny of doubtful forms, NEWBERY, pp. 18-20, Ent. Rec. xvii; BEARE & DONISTHORPE, t. c. pp. 20-22, & 42-45. Myrmecophilous *Col.* in 1905, DONISTHORPE, p. 271, Ent. Rec. xvii. *Triplax*, tabulated, BEARE, pp. 176-178, Ent. Rec. 1905. *Phymatodes lividus* at Reading, BOUSKELL, p. 295, Ent. Rec. xvii. *Neoclytus erythrocephalus* in Lancashire, W. E. SHARP, p. 92, Ent. Mag. 1905. *Orcheses sparsus*, as British, NEWBERY, p. 116, Ent. Mag. 1905. *Anisotoma oblonga*, in Britain, CHAMPION, p. 198, Ent. Mag. 1905. *Baris T-album* and *pilistrigata*? two species, CHAMPION, p. 224, Ent. Mag. 1905. *Elater nigerrimus vice aethiops*, CHAMPION, p. 210, Ent. Mag. 1905.

Hymenoptera. KIEFFER (840), *Proctotrypidæ* numerous n. spp. *Tenthredinidae*, 3 novelties, MORICE (1065). *Ichneumonidæ*, novelties, n. spp., MORLEY (1067).

Lepidoptera. *Agdistidae* and *Alucitidae*, list of British, TUTT (1512). Practical hints for the field, TUTT (1514). *Rhopalocera*, General work, TUTT (1510). General work, *Tortricidae*, BARRETT (78). *Tortrix pronubana*, novelty, FLETCHER (579). *Argyresthia illuminatella*, novelty, MEYRICK, p. 226, Ent. Mag. 1905. *Arctornis L-nigrum* at Chelmsford, PROUT, p. 73, Ent. Rec. xvii.

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Collembola. AXELSON (49), Finland *Collembola*, 8 spp. n.

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(a.) and (b.) and for France (f.), for Caucasus (h.)].

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(g.) *Southern Europe and Mediterranean Basin* [see also (a.), (b.) and (f.) and for Caucasus and Transcaucasus (h.)].

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Diptera. KIEFFER (844), gall-dwelling Cecids, n. genn., n. spp. RICARDO (1266), N. Africa etc., *Tabanidae*, 1 sp. n. BILLET (118), Algeria, *Anopheles chaudoyei*, distribution. SERGENT (1382), Algeria, *Grabhamia* n. sp. THEOBALD (1477), Tunis, *Culicidae*, 4 spp. n. BEZZI (113), S. France, Italy, S. Hungary, *Clinocera* spp. n. NOÉ (1105), Rome, *Chironomidae* n. g. KIEFFER & TROTTER (849), Avellino, *Cecidomyiidae*, 2 spp. n. TROTTER (1503), Italy, *Janetiella* sp. n. STROBL (1455), Balkan penins., *Tipulidae*, *Stratiomyidae*, *Bombyliidae*, *Empididae*, *Asilidae*, *Scenopidae*, *Leptopodidae*, *Syrphidae*, *Conopidae*, *Tachinidae*, *Acalyptratae*, spp. n.

Hemiptera. HORVÁTH (779), Spain, *Heteroptera*, 7 spp. n. REUTER (300), Spain, 2 spp. n. DEL GUERCIO (392), Firenze, *Siphidae* n. sp.

Coccoidea. MARCHAL (1005), Algeria, 3 spp. n. LINDINGER (966), Corsica, *Leucaspis* n. sp.

Trichoptera. ULMER (1518), Algeria, *Trienodes* n. sp.

Neuroptera s. l. Calatrava, list, NAVÁS, p. 502, Bol. Soc. espan. v.

S. France and Spain, LUCAS, pp. 296, 297, Entomologist 1905.

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Odonata. MORTON (1073), Algeria, *Ischnura* n. sp.

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Collembola. CARL & LEBEDINSKY (277), Crimea, n. g.

(h.) *Caucasus and West and Central Asia, including Arabia* [see also (a.) and (b.)]: for Tibet see 6, for Mediterranean Asia see (g.).

Coleoptera. FAIRMAIRE (536), Aresch, *Prionus* n. sp. REITTER (1251), Araxes Valley, *Proteinus* sp. n. CARRET (283), Mesopotamia, *Bembidium* n. sp. MAINDRON (1001), Mesopotamia, Arabia, *Glycia* sp. n. PIC (1179), Bagdad, *Adoretus* n. sp. KERREMANS (835), Persia, *Julodis* n. sp. NONFRIED (1108), Persian Kurdistan, *Dorcus* n. sp. PIC (1193), W. Asia, *Anoxia*, *Rhagonycha*, *Cteniopus*, *Strophomorphus* and n. g. near *Mylacis* n. sp. REITTER (1252), Transcaspian, *Dromius* sp. n. PIC (1170), Transcaspian, *Anthicus* n. sp. REITTER (1246), Transcaspian, *Throscus*, *Gonocephalum*, *Agapanthia*, *Stylosomus* sp. n. SUMAKOW, Transcaspian region, *Pinophilus* and *Mesostenus*, Wien. ent. Zeit. xxiv, p. 28. PIO (1190), Arabia, *Adoretus* n. sp., Tokat, *Dorcadion* sp. n. CAMERON (237), Perim, *Ocladius* n. sp. FAUVEL (546), Perim, *Staphylinidae* n. sp.

Hymenoptera. KONOW (886), Asia Minor, *Amasis* n. sp. ZAVATTARI (1669), Syria, list. KONOW (884), Turkestan, Teheran, *Tenthredinidae*, 3 spp. n. ASHMEAD (38), Russian Turkestan, *Mymaridae*, 2 spp. n. KOHL (877), Socotra and S. Arabia, summary of collection.

Lepidoptera. DZIURZYŃSKI (486), Armenia, *Zygæna* sp. n. DZIURZYŃSKI (487), Caucasus, *Zygæna* n. sp. PÜNGELER (1222), Aksu, *Macrestra* n. sp.

Diptera. SPEISER (1437), Red Sea, *Pseudolofersia* sp. n. PATTON (1140), Aden, *Culicidae*, 5 spp. n.

Hemiptera. DISTANT (427), Aden, n. g. *Cicadidae*. DISTANT (426), Socotra, *Cicadidae* n. sp.

Coccoidea. LINDINGER (966), Persia, *Leucaspis* n. sp.

Orthoptera. KUTHY (908), Centr. Asia, *Acrididae*, 4 spp. n. BURR (219), Sokotra, *Forficulidae*, 2 spp. n.

4. AFRICA (TROPICAL & SOUTH). For North Africa see 3 (g.); for Comoro and Aldabra Ids. see 5. Socotra, see 3 (h.).

Insecta. SJÖSTEDT (1403), Cameroons, list of insects found, pp. 22-86. AUSTEN (45), Uganda, short list.

Coleoptera. AURIVILLIUS (41), White Nile and Khartum, *Bagous* and *Baris* sp. n. BERNHAUER (103), *Bledius* n. sp. BOURGEOIS (150), Spanish Guinea, *Malacodermidae*, 6 spp. n. BRAEM (170), Congo, *Fornasinius* n. sp. CLAVAREAU (322), Congo, *Megalopides*, 2 spp. n. DISTANT (421), Natal, *Cerambycidae*, 3 spp. n. ESCALERA (524), Rio de Oro, *Eulipus* n. sp. FAUVEL (546), *Staphylinidae* spp. n. FAUVEL (550), *Staphylinidae*, 10 spp. n. FAUVEL, Rev. Ent. franc. 1905, p. 148, Erythrea, *Staphylinidae*, short list. GEBLEN (646), White Nile, *Adesmia* n. sp.

GESTRO (649), Erythræa, *Hispidae* sp. n. GORHAM (676), S. Africa, *Cleridae*, 4 spp. n., *Melyridae*, 6 spp. n., *Oediarthrus* sp. n. GROUVELLE (703), W. Africa, *Cautomus* n. sp. HAGEDORN (714), E. Africa, *Scolytoplatypus* sp. n. HARTMANN (726), *Niphades*, 2 spp. n. HARTMANN (727), W. Africa, *Megarhinus* n. sp. HEATH (730), W. Africa, *Cerambycidae*, 3 spp. n. HEATH (731), Angola, *Cicindelidae*, *Cerambycidae* sp. n. HINTZ (750), *Cleridae*, 17 spp. n. HINTZ, Fernando Po, *Cleridae*, short list, Deutsche ent. Zeitschr. 1905, p. 314. HORN (764), E. Africa, *Cicindela*, 2 spp. n. HORN (766), Cameroons, *Cicindelidae*, short list. HORN (771), E. Africa, *Odontochila* and *Cicindela* sp. n. KERREMANS (835), *Buprestidae*, 5 spp. n. KOLBE (879), *Dynastidae* n. genn., 6 n. spp. LESNE (940), *Bostrychidae*, 3 spp. n. LESNE (945), Spanish Guinea, *Bostrychidae*, annotated list. LÉVEILLÉ (948), *Trogostidae*, 3 spp. n. LEWIS (952), Trop. Africa, *Histeridae*, 3 spp. n. LEWIS (953), Angola, *Macrolister* n. sp. LEWIS (954), Abyssinia, *Paratropus* n. sp. MAINDRON (1001), Erythræa, *Carabidae*, 4 spp. n. MARSHALL (1010), S. Africa, *Cossonus*, 6 spp. n. MOSER (1076), Africa trop., *Cetoniidae*, 4 spp. n. OBST (1114), E. Africa, *Buprestidae*, 4 spp. n. OHAUS (1119), Omdurman, *Adoretus* n. sp. OLIVIER (1121), White Nile and Abyssinia, *Luciola* n. sp. OLIVIER (1123), Pretoria and Gaboon, *Luciola*, 2 spp. n. D'ORBIGNY (1124), *Onthophagus*, many spp. n. PIC (1172), *Formicomus*, 2 spp. n. PIC (1176), *Hylophilus*, 3 spp. n. PIC (1180), E. Africa, *Zygia* n. sp. PIC (1183), Timbuctoo, *Schizonycha* n. sp. PIC (1187), Obock, *Zygia* n. sp. PIC (1196), Spanish Guinea, *Xylophilidae*, 10 spp. n. RÉGIMBART (1234), Erythrea, *Dytiscidae*, *Hydrophilidae* spp. n. REITTER (1244), *Opatrini* spp. n. RITSEMA (1274), Cameroons, *Helota* n. sp.; Africa, *Helota*, 2 spp. n., id. (1276). ROUSSEAU (1313), Africa trop., *Dyschirius*, *Atractonota*, *Eudema* n. sp. SCHAFUSS (1328), *Scolytidae*, 5 spp. n. SCHULZ (1359), Zanzibar,

- Eumenes*, W. Africa, *Pompilus* sp. n. SCHWARZ (1370), *Elateridae*, 18 spp. n. SPAETH (1430), *Cassididae*, 8 spp. n. WASMANN (1585), Cameroons, termitephilous *Staph.* n. g. WATERHOUSE (1589), E. Africa, *Lucanidae* sp. n., *Cetoniidae*, 2 spp. n. WEISE (1596), White Nile, *Clytra* n. sp. WEISE (1597), *Chrysomelidae* and *Coccinellidae*, 20 spp. n. WEISE (1598), Yola and Cameroons, *Chrysomelidae*, 3 spp. n. WEISE (1603), Erythrea, *Exochomus* sp. n. WEISE (1604), Natal, *Chilocorus* n. sp. WEISE (1612), Rhodesia, *Chrysomelidae*, 4 spp. n., *Solanophila* sp. n. ZANG (1667), E. Africa, *Didymus* n. sp. White Nile, see also 3 (g.) under Jagerskiöld exp.
- Hymenoptera*. ALFKEN (21), Abyssinia, *Prosopis* n. sp. ALFKEN (23), Cape Colony, *Prosopis* n. sp. ANDRÉ (24), *Mutilla*, 3 spp. n. ANDRÉ (27), Transvaal, *Mutilla*, 2 spp. n. BRAUNS (173), S. Africa, *Masaridae*, 7 spp. n. BRAUNS (174), Cape Colony, *Fidelia* n. sp. BRAUNS (175), Cape Colony, *Serapis* n. sp. BUYSSEN (232), Congo, *Polistes*, 2 spp. n. CAMERON (239), Cape Town, *Cynipidae* subfam. n. CAMERON (244), Transvaal, *Odynerus*, *Tachytes* sp. n. CAMERON (246), Natal, *Pseudagena* sp. n. CAMERON (247), Cape Colony, *Gasteruption* sp. n. CAMERON (248), Cape, *Hemitelini* n. g. CAMERON (249), Cape n. g. *Braconidae*. CAMERON (255), S. Africa, *Chalcididae*, 3 spp. n. CAMERON (256), Cape Colony, *Chirotica* n. sp. CAMERON (258), S. Africa, *Ichneumonidae*, 6 spp. n., *Phaenocarpa* sp. n. CAMERON (259), Cape, Colony, *Eurytomini*, 2 spp. n. CAMERON (260), Natal, n. g. *Joppini*. CAMERON (261), S. Africa, *Apidae*, *Diptroptera*, *Fossoria*, *Ichneumonidae*, *Bracon*, *Evan*, *Proctotryp*, 79 spp. n. CAMERON (262), Cape Colony, *Fossoria*, 6 spp. n., *Crocisa* sp. n., *Ichneumonidae*, 4 spp. n., *Chalcididae*, 5 spp. n. CAMERON (263), Cape Colony, *Odynerus* 2 spp. n., *Fossoria*, 10 spp. n., *Bethylinae* n. g., *Iphiaulax* n. sp., *Ichneumonidae*, 7 spp. n. CAMERON (264), Cape Colony, *Halictus* and *Sphecodes*, 5 spp. n., *Odynerus*, 3 spp. n., *Fossoria*, 8 spp. n., *Ichneumonidae*, 2 spp. n., *Eupelmini* n. g. EMERY (493), *Formicidae*, 6 spp. n. EMERY (495), Cameroons, *Dorylus*, 2 spp. n. ENDERLEIN (498), Mombasa and S. Africa, *Gastrotheca*, 2 spp. n. ENDERLEIN (500), W. Africa, *Stephanidae* sp. n. ENDERLEIN (502), E. Africa, *Evania* sp. n. ENDERLEIN (510), Africa, *Braconidae* n. g., 6 spp. n. FOREL (586), South Angola, *Formicidae*, 8 spp. n. FOREL (591), Congo, n. g. near *Tapinoma*. FOREL (592), p. 13, Natal, *Strumigenys* n. sp. FRIESE (600), *Apidae* spp. n. FRIESE (603), *Tetralonia*, 8 spp. n. FRIESE & BRAUNS (604), *Anthidiium*, 8 spp. n. FRIESE (606), *Anthophora*, 22 spp. n. FRIESE (608), *Crocisa*, 4 spp. n. FRIESE (609), S. Africa and Old Calabar, *Ceratina*, 17 spp. n. GARCÍA (639), Rio de Oro, *Bembex* sp. n. KIEFFER (841), Trop. Africa, *Proctotrypidae*, 3 spp. n. KOHL (874), Abyssinia, *Belomicrus* sp. n. KOHL (875), Algoa Bay, *Passaloecus* n. sp. MAYR (1017), S. Africa, n. g. *Perilampides*. SZÉPLIGETI (1465), Trop. Africa, *Ophionidae*, 3 spp. n. SZÉPLIGETI (1466), *Iphiaulax*, 12 spp. n., *Cremnops* sp. n., *Braunzia* sp. n. SZÉPLIGETI (1468), Cameroons, *Braconidae*, 12 spp. n.
- Lepidoptera*. AURIVILLIUS (40), *Lasiocampidae*, 17 spp. n. AURIVILLIUS (41), W. Africa, *Rhopalocera*, *Sesiidae*, *Bombyces* spp. n. BARTEL (84), *Rhopalocera*, 15 spp. n. BETHUNE-BAKER (112), Kikuyu escarpment, *Lycenidae*, 3 spp. n. DRUCE (456), Rhodesia, *Euphaedra* sp. n. DRUCE & DRUCE (457), Rhodesia, *Rhopalocera*, 11 spp. n. HAMPSON (715), *Hadeninae* n. genn., n. spp. HAMPSON (716), *Syntomidae*, *Arctiidae*, spp. n., *Agaristidae* n. g. HAMPSON (717), *Noctuidae* n. spp. HAMPSON (718), Uganda, n. g. *Pterophoridae*. HEYN (746), Quango, *Pieris* n. sp. HOLLAND (755), Sierra Leone, *Noctuidae* n. g. JUNOD (825), Delagoa, annotated list, *Pyrgus* n. sp., *Monda* n. sp. KHEIL (839), Spanish Guinea, list, *Liptena* sp. n. ROTHSCHILD & JORDAN (1306), N. E. Africa, *Rhopalocera* subspp. n. and *Papilio* sp. n. THIERRY-MIEG (1493),

Mozambique, *Problepsis*, *Scardamia* and *Acidalia* sp. n. WARREN (1570), *Geometridae*, 15 spp. n. WARREN (1573), *Geometridae* about 50 spp. n., *Epiplema*, 3 spp. n., *Banisia* sp. n. WARREN & ROTHSCHILD (1576), Sudan, 23 spp. n., *Bombyces*, *Noctuidae*, *Geometr.*, *Pyral.*, *Tin.* WEEKS (1594), Congo, *Colias* n. sp.

Diptera. AUSTEN (45), *Glossina*, distribution. AUSTEN (47), *Glossina palpalis*, distribution. DÖNITZ (448), E. Africa, *Cordylobia* n. sp. GILES (654), Zululand, *Culicidae* n. sp. GRÜNBERG (705), W. Africa, *Culicidae*, 6 spp. n. LAVERAN (922), French Guinea, *Culicidae*, list. NEVEU-LEMAIRE (1096), Harar, *Stegomyia* n. sp. NEVEU-LEMAIRE (1097), Centr. Africa, *Nyssorhynchus* n. sp. SPEISER (1437), S. Africa, *Lipoptena* sp. n. THEOBALD (1478), S. Africa, *Culicidae*, 6 spp. n. THEOBALD (1479), W. Africa, *Ficalbia* sp. n. THEOBALD (1482), W. Africa, *Culicidae*, 4 spp. n. THEOBALD (1483), Transvaal, *Stegomyia* n. sp. WELLMAN, Bihe, Angola, J. trop. Medicine viii, p. 319.

Aphaniptera. ROTHSCHILD (1301), 4 spp. n.

Hemiptera. BERGROTH (98), Congo, *Katanga*, *Triboloccephala*, *Henicocephalus* sp. n. BERGROTH & SCHOUTEDEN (100), Congo, *Heteroptera*, 13 spp. n. BREDDIN (182), Cameroons, *Platymierus*, E. Africa, *Tragelaphodes* sp. n. BREDDIN (184), E. Africa, n. g. *Acanthosomini*. DISTANT (426), *Cicadidae*, 4 spp. n. DISTANT (427), *Cicadidae*, 3 spp. n. DISTANT (428), *Cicadidae*, 8 spp. n. DISTANT (429), *Cicadidae* n. spp., *Pyrops* n. sp. DISTANT (430), *Platypleura*, 3 spp. n. DISTANT (431), *Cicadidae*, 5 spp. n. DISTANT (433), Cape Town, *Oxyacarus* sp. n. DISTANT (435), S. Africa, *Lygaeidae*, 3 spp. n. *Tingididae*, 14 spp. n., *Hydrometridae* sp. n. KIRKALDY (858), Bouake, n. g. *Tettigoniidae*. MELICHAR (1029), E. Africa, *Fulgoridae*, 16 spp. n., *Cercopidae*, 3 spp. n., *Sciaridae*, 2 spp. n., *Membracidae*, 5 spp. n., *Jassidae*, 15 spp. n. MELICHAR (1030), *Fulgoridae* n. g. SCHMIDT (1332), *Ricaniidae*, 3 spp. n. SCHMIDT (1333), *Fulgoridae*, 7 spp. n. SCHOUTEDEN (1341), Eritrea, *Pentat.*, 2 spp. n. SCHOUTEDEN (1342), Abyssinia, *Pentatomidae*, 2 spp. n. SCHOUTEDEN (1343), Usambara, *Garsauria* sp. n. SCHOUTEDEN (1344), Congo, n. g. *Graphosomini*. SCHOUTEDEN (1347), *Pentatomidae*, 3 spp. n. VARELA (1532), Cameroons, *Reduviidae*, 4 spp. n.

Anoplura. SPEISER (1435), Abyssinia, n. sp.

Trichoptera. ULMER (1517), W. Africa, 3 n. spp. ULMER (1518), Congo, 4 spp. n. ULMER (1518A), Congo, *Dipseudopsis* n. sp.

Neuroptera. WEELE, VAN DER (1595), Liberia, *Ancylopteryx* n. sp.

Psocidae. ENDERLEIN (497), Cameroons, n. g.

Termitidae. DESNEUX (401), Sao Thomé isld., *Termes* n. sp. SJÖSTEDT (1404), *Termitidae*, 9 spp. n.

Odonata. KIRBY (851), Mashonaland, list with 2 spp. n.

Thysanura. ESCHERICH (525), *Lepismatidae*, S. Africa, 11 spp. n., Congo, 1 sp. n.

Orthoptera. ADELUNG (8), E. Africa, *Blattidae*, 13 spp. BOLIVAR (127), *Acrididae*, 23 spp. n. BURR (219), *Opisthosomidae* sp. n. KIRBY (853), W. Africa, *Palophus* sp. n. REHN (1237), W. Africa, *Anisolabis* n. sp., *Labidura riparia*.

5. MADAGASCAR, including ALDÁBRA ISLDS., etc.

Insecta. MEUNIER (1040), *Diptera* and *Chalcididae* in Madagascar copal.

Coleoptera. BEGUIN-BILLECOQ (93), *Apion* n. sp. BEGUIN-BILLECOQ (94), Madag. and Mauritius, Mayotte, *Apion*, 33 spp. n. BERNHAUER (103), *Oxypodinus* n. sp. FAIRMAIRE (534), 60 n. spp. FAUVEL (547), *Staphylinidae* n. spp. FLEUTIAUX (581), Comoro islds., *Sternotomis* sp. n. GROUVELLE (704), *Læmophlaeus* n. sp. HORN

- (771), *Pogonostoma*, *Odontochila* n. sp. LAMEERE (910), *Hoploderes*, 4 spp. n. LEWIS (954), *Histeridae*, 2 spp. n. LEWIS (953), *Histeridae*, 2 spp. n. NONFRIED (1107), *Prosopocerus* n. sp. PIC (1175), *Petalium* n. sp. SCHAUFUSS (1328), *Scolytoplatypus*, *Xyleborus* spp. n. SCHWARZ (1370), *Elateridae*, 8 spp. n. SPAETH (1430), *Cassididae*, 4 spp. n. THÉRY (1488), *Buprestides*, general work, many spp. n. WEISE (1610), Mauritius, *Brontispa* n. sp.
Hymenoptera. ANDRÉ (24), *Mutilla*, 2 spp. n. BUYSSON (232), *Polistes*, 2 spp. n. FORREL (591), *Formicidae*, 2 spp. n. KIEFFER (841), Madagascar. *Proctotryp.*, 5 spp. n., Réunion, 1 sp. n.
Lepidoptera. BASTELBERGER (81), *Gullaca* n. sp. HAMPSON (715), Seychelles and Mauritius, *Hadeninae* n. sp. HAMPSON (717), Madag. and Mauritius, *Noctuidae* n. spp.
Diptera. VENTRILLON (1537), *Culex*, *Stegomyia* sp. n. VENTRILLON (1538), *Culicidae*, 4 spp. n.
Hemiptera. BERGROTH (98), *Pentatom*. 2 genn. n., *Cletomorpha*, *Lygaeidae* n. g., *Lethaeus* n. sp., *Reduv*. n. g., *Henicocephalus*, 2 spp. n. BREDDIN (180), n. g. *Henicocephalidae*. DISTANT (426), *Cicadidae*, 3 n. spp. DISTANT (427), Mauritius, *Stagira* n. sp. DISTANT (431), *Cicadidae*, 7 sp. n., Seychelles, 1 sp. n. SCHMIDT (1333), *Lichena* n. sp. SCHOUTEDEN (1346), Madagascar, *Catacanthus* sp. n., *Neara* sp. n., Mauritius, *Neara* sp. n. SCHOUTEDEN (1347), *Pentatomidae*, 5 spp. n. VARELA (1533), *Margasus*, 4 spp. n.
Trichoptera. ULMER (1517), 4 spp. n. ULMER (1518A), 2 spp. n. BOLÍVAR (130), Mad. & Nossibe, *Atractomorphinæ* and *Orthacrinæ* spp. n. BURR (220), *Chatospania* n. sp.
Thysanura. ESCHERICH (525), gen. n.

6. TROPICAL and EASTERN ASIA, incl. JAPAN and TIBET. For outskirts see also 3 (a.), (g.), (h.). Arabia, see 3 (h.).

- Insecta*. ALFKEN (16), Japan, *Hym.*, *Lep.* and flowers visited. KIEFFER (846), Bengal, Gall insects, 20 spp. n. NAVÁS (1084), Japan *Ascalaphus*, China n. g. *Hemerob*, Himalaya *Scyllina*, *Mantispa*, *Glenurus* n. sp.
Coleoptera. ARROW (30), Malay penins., *Aphodiid*, 2 spp. n. BOILEAU (126), India, Formosa, *Lucanidae*, 3 spp. n. BOURGEOIS (152), Ceylon, *Malacod.*, 7 spp. n., *Atractocerus* sp. BOURGEOIS (157), Bengal, *Lycide*, 4 spp. n. DESNEUX (400), India, *Ceratoderus* n. sp. FAIRMAIRE (537), Kouitchou, n. g. *Cetoniidae*. FAUVEL (546), India etc., *Staphylinidae* spp. n. FLEUTIAUX (580), India, *Elateridae*, 8 spp. n. HORN (763), India and Ceylon, *Cicindelidae*, 2 spp. n. HORN (767), S. India, *Deroocrania* sp. n. HORN (770), Ceylon, Travancore, Siam, *Collyris*, 3 spp. n. HORN (771), Assam, *Therates* n. sp. JACOBY (810), Malay penins., *Chrysomelidae*, 10 spp. n. LAPOUGE (914), Japan, *Carabus*, short list. LÉVEILLÉ (947), Tonkin, *Acrops*, India, *Ancyrona* spp. n. LÉVEILLÉ (948), China, *Alindria* sp. n. LEWIS (953), Trop. Asia, India etc., *Histeridae*, 4 spp. n. LEWIS (954), India, *Platysoma* sp. n., Yunnan, *Hister* sp. n. MAINDRON & FLEUTIAUX (1002), S. India, *Cicindelidae*, list. MOSER (1076), Assam, *Trichius* n. sp. NONFRIED (1108), S. W. China, *Prismognathus* n. sp. NÜSIMA (1110), Japan, *Scolytus*, 3 spp. n. OHAUS (1115), Tonkin, India, *Rutelides*, 17 spp. n. OLIVIER (1123), Pondichery, *Luciolia* n. sp. PIC (1177), Shanghai, *Macratria* n. sp. PIC (1181), Yunnan, *Cerambycidae*, 5 spp. n., Japan, *Obrium* n. sp. PIC (1182), India, *Attalus*, *Ebæus* sp. n. PIC (1186), Japan, *Podabrus* and *Cantharis* etc., 4 spp. n. PLANET (1208), Se-Tschuen or Yunnan? *Pseudolucanus* n. sp. REITTER (1244), China, India, *Tene-*

brionidæ n. spp. REITTER (1248), Tien-tsin, *Epicauta* sp. n. REITTER (1249), China, *Melolonthidæ* sp. n. RITSEMA (1273), Tonkin, Tenasserim, China, Bhutan, *Helota*, 8 spp. n. SCHAUFUSS (1328), Ceylon, *Coccotrypes* sp. n. SCHWARZ (1369), N. India and Ceylon, *Elateridæ*, 13 spp. n. SHARP (1385), Korea, E. Asia, Tibet, *Criocephalus*, 5 spp. n. SPAETH (1430), Tenasserim, *Lacoptera* n. sp. WATERHOUSE (1590), Ceylon, *Chrysodema* sp. n. WEISE (1599), Lower India, *Cassidiidæ* and *Hispidae*, catalogue with 10 spp. n. WEISE (1605), Assam, *Chirida* n. sp. WEISE (1606), Darjiling, *Potaninia* n. sp. WEISE (1607), Yunnan, *Coccinellidae* n. sp. ZANG (1660), Tonkin, *Passalidae*, 3 spp. n. ZANG (1662), Ceylon, *Lucanidae* and *Passalidae*, *Figulus* sp. n. ZANG (1665), India, *Passalidae*, 2 spp. n. ZANG (1666), Ceylon, *Leptaulacides* sp. n.

Hymenoptera. ANDRÉ (24), Pekin, *Mutilla* n. sp. CAMERON (238), Khasia Hills, *Sphegidæ*, *Ceropalidæ*, 47 spp. n. CAMERON (241), India, *Fossoria*, 5 spp. n. CAMERON (243), India, *Fossoria*, 2 spp. n., *Ichneumonidæ*, 6 spp. n., *Bracon*, 2 spp. n. CAMERON (253), Sikkim, *Ichneumonidæ*, 18 spp. n. CAMERON (257), India, *Ichneumon*, *Chalcid.*, 16 spp. n. CAMERON (266), Japan, *Ampulex* n. sp., Sikkim, *Icaria* n. sp. CAMERON (269), Singapore, *Agathis*, *Buodias*, *Skeatia*, n. sp.; Himalaya *Pleuroneurophion* n. sp. CAMERON (270), Ceylon, 36 spp. n., *Ichneumon*, *Bracon*, *Evan.*, *Chalcid.*, *Bethyl*, *Siricid.* CAMERON (271), Ceylon, *Ichneumonidæ*, 58 spp. n. COCKERELL (326), Kashmir, *Bombus* n. sp. EMERY (493), Tsushima, *Pachycondyla* sp. n. ENDERLEIN (499), Siam, *Stantonia* n. sp. ENDERLEIN (502), Burma, *Evania* sp. n. FOREL (591), Nicobar Islds., *Formicidæ*, 2 spp. n. FRIESE (601), Ceylon, Perak, Tshusima, *Crociisa* spp. n. FRIESE (611), W. China, *Bombus* n. spp. KIEFFER (841), India, Burma, *Proctotrypidæ*, 7 spp. n. KOHL (874), Japan, *Crabro* sp. n. MOCsÁRY (1055), *Rhyssa*, 3 spp. n. PÉREZ (1146), Japan, *Aculeata*, many spp. n. SZÉPLIGETI (1466), Singapore, *Braconidæ*, 6 spp. n.

Lepidoptera. Geographical relation of *Lepidopterous* fauna of Japan, ELWES, pp. xli–xliv, P. Ent. Soc. London 1905. ADAMSON (7), Burmah, *Rhopalocera*, list of, 253 spp. BASTELBERGER (80), Assam, *Gullaca* n. sp. BASTELBERGER (81), N. India, *Dilophodes*, *Mnesiloba* n. sp. BINGHAM (119), India, Ceylon and Burma, *Rhopalocera*, general work. H. H. DRUCE (459), Malay Penins., list of 51 spp. DUDGEON (465), India, *Soritia*, *Acanthopsyche*, *Mahasena*, *Nonagria*, *Pterognia*, *Chilo*, *Polyocha*, sp. n. DUDGEON, Catalogue of the *Heterocera* of Sikkim and Bhutan, Part xvii, *Noctuidæ* contd., J. Bombay Soc. xvi, pp. 275–291. DYAR (470), Japan, *Zygænidæ*, *Limacodidæ*, *Geometridæ* and *Pyrausta* n. sp. HAMPSON (715), China, Japan, India etc., *Hadeninæ* n. spp. HAMPSON (717), India, Japan etc., etc., *Noctuidæ* n. spp. HAMPSON (718), Ceylon, n. g. *Orneodidae*. HAMPSON (719), India and Ceylon, Bombyces, 22 spp. n. JANET (814), Laos, *Stichophthalma* sp. n. LONGSTAFF (972), India and Ceylon, *Rhopalocera*. LONGSTAFF (974), Hong Kong, *Orsonoba* n. sp. MEYRICK (1043), India, *Microlepidoptera*, 89 spp. n. MOORE (1062), India, work on *Rhopalocera* continued, *Pieridae*, 3 spp. n. NAGANO (1082), Japan, *Sphingidae*. RHÉ-PHILIPPE, Lucknow, *Rhopalocera*, J. Bombay Soc. xvi, pp. 720–722. Malay States, *Dodona deodata*, ROBINSON, J. Fed. Malay Museums i, p. 15. SOUTH (1429), Japan and Korea, *Nodaria* n. sp. SWINHOE (1459), India, Malay Penins., *Drepan.*, *Hepial.*, *Noctuidæ*, *Geometridæ* spp. n. SWINHOE (1460), Khasia Hills, *Limacod.*, *Lasioc.*, *Noctuid.*, *Geometr.*, 4 spp. n., *Rhodoneura*, 3 spp. n. SWINHOE (1461), India, Burma, Ceylon, *Chalcosiidae*, *Noctuidæ*, 3 spp. n. SWINHOE (1462), India, *Drepanulid.*, *Noctuid.*, *Geometrid.* n. spp. THIERRY-MIEG (1493), Japan, *Problepsis* n. sp. WARREN (1569), China, *Geometridæ*, 2 spp. n.,

Shan States, *Hypolampris* sp. n. WARREN (1574), Ceylon, *Geometr.*, 3 spp. n.; Shan States, 1 sp. n., Hainan, 3 spp. n. and *Epiplema*, 2 spp. n. YOUNG (1648), India, *Rhopalocera*.

Diptera. ADIE & ALCOCK (11), Calcutta, *Anopheles listoni*. BEZZI (115), Pekin, *Systropus*, 2 spp. n. BRUES (201), India and Singapore, *Phoridae*, 5 spp. n. CHALMERS (297), Ceylon, *Anophelinæ*, distribution. SPEISER (1437), Tenasserim, *Olfersia*, Ceylon, *Lipoptera* sp. n. THEOBALD (1476), Bombay, n. g. *Culicidae*. THEOBALD (1477), India, Singapore, *Culicidae*, 7 spp. n. THEOBALD (1478), India, *Culicidae* 4 spp. THEOBALD (1480), Ceylon, *Culicidae*, 8 spp. n. THEOBALD (1481), India, n. g. *Culicidae*.

Aphanaptera. ROTHSCHILD (1301), Malay States, *Ceratophyllus*, 2 spp. n. Hemiptera. BREDDIN (183), India and Cochin China, *Chrysocoris*, 2 spp. n. DISTANT (422), Yunnan, Assam, Tenasserim, *Dundubiaria*, 3 spp. n. DISTANT (423), India, *Terpnosia* sp. n. DISTANT (424), Hong Kong, *Mogannia* n. sp., Mts. Song-Chai, n. g. *Cicadidae*. DISTANT (426), China, *Cicadidae*, 2 spp. n. DISTANT (427), China, *Quintilia* n. sp. DISTANT (429), China, N. China, Siam, Tonkin, *Cicadidae* n. sp., Siam, *Pyrops* n. sp. DISTANT (430), Malacca, Cochin China, *Platycleura*, 2 spp. n. DISTANT (431), Ta-tsienlu, *Platylomia*, 2 spp. n. DISTANT (431), Tibet, *Oncotympana* sp. n. DISTANT (432), Yunnan, *Gaeana* n. sp. DISTANT (434), Ceylon, *Aneurus* n. sp. HORVÁTH (774), Japan, n. g. *Berytidæ*. HORVÁTH (776), Japan, *Heteroptera*, 15 spp. n. JACOBI (805), Assam, Burma, *Cercopidae*, 2 spp. n. JACOBI (806), Tonkin, *Cicad.*, 1 sp. n., *Fulgor.*, 2 spp. n., *Cercop.*, 4 spp. n., *Jassid.*, 1 sp. n. KIRKALDY (858), India, *Gypona* sp. n. KIRKALDY (862), Ceylon, *Micronecta* sp. n. REUTER (1259), Sztschwan, China, *Capsidæ*, many spp. n. REUTER (1261), India, *Urostylis* sp. n. SCHMIDT (1333), Tonkin, *Fulgora* n. sp. SCHOUTEDEN (1344), *Scotinophara* n. sp. SCHOUTEDEN (1348), Ceylon, *Aphidae*, 2 spp. n.

Coccidae. GREEN (687), Ceylon, 17 spp. n. LINDINGER (967), Singapore *Parlatoreæ* n. sp., Japan n. g. MARCHAL (1005), Ceylon, *Asterolecanium* sp. n.

Trichoptera. BANKS (72), Japan, 12 spp. n. ULMER (1517), Sikkim, Japan, 5 spp. n. ULMER (1518), Moupin, *Rhyacophilæ* sp. n., India, *Psilochorema* sp. n. ULMER (1518A), Assam, *Dinarthrum*, Ceylon, *Macronema*.

Perlidae. NEEDHAM (1089), Japan, *Perlidae*, 3 spp. n. Termitidae. DESNEUX (401), Sind, *Termes*, 3 spp. n., *Hodotermes* n. sp. Odonata. FOERSTER (584), Tonkin, 2 spp. n. KIRBY (852), Ceylon, *Zygognidæ* sp. n., Tonkin, *Zygognidæ*, *Onychothemis* sp. n.

Thysanura. BOUVIER (162), Tibet, *Japyx dux*. Collembola. BECKER (88), Persian Gulf, n. g. *Collembola*. Orthoptera. BOLÍVAR (129), Singapore, *Xiphidiopsis* n. sp. BOLÍVAR (130), India, China, *Atractomorpha*, 5 spp. n., *Orthacris* n. sp. BOLÍVAR (130), Malay penins. Cambodia, *Pyrgomorphidæ*, 2 spp. n. BURR (220), Tonkin, N. India, Mou-Pin, *Forficulidæ*, 3 spp. n. BURR (221), India, *Forficulidæ*, 4 spp. n. BURR (222), India, *Opisthocosmia* n. sp. DOHRN (443), Tonkin, *Hexacentrus* n. sp. KRAUSZE (894), Tonkin, *Conocephalus*, 2 spp. n. REHN (1237), Siam, Pekin, *Forficulidæ*, 3 spp. n. WILLEY (1632), Ceylon, short list.

7. ASIATIC ARCHIPELAGO, including PAPUA. (For islands beyond Papua see 2. Insular.)

Insecta. ALFKEN (16), Java, *Hym.* and *Lep.* and flowers they visited. BIRÓ (120), New Guinea, notes.

Coleoptera. ARROW (30), Philippines, *Rhyparus* sp. n. BERNHAUER (103), Java, Sumatra, Engano, *Staphylinidae* n. spp. BOILEAU (126), *Lucanidae*, 7 spp. n. FAUVEL (544), Java, *Staphylinidae*, 10 spp. n. FAUVEL (546), Java, Sumatra, Borneo, *Staphylinidae* spp. n. HARTMANN (726), Sumatra, *Niphades* sp. n. HELLER (737), New Guinea, *Lomaptera* n. sp., *Cerambycides* n. g., *Curculionidae*, 8 spp. n. HORN (769), New Guinea, *Cicindela* n. sp. JANSON (815), New Guinea, *Cetoniidae*, 7 spp. n. LÉVEILLÉ (949), Java, *Ancyriona* n. sp. LEWIS (953), Borneo, *Coryphaeus* sp. n. LEWIS (954), Sumatra, New Guinea, *Platysoma*, 3 spp. n. MÖLLENKAMP (1057), Borneo, *Odontolabis*, *Prosopocerus* sp. n., Sumatra, *Eurytrachelus* sp. n. MOSER (1076), Dammer isld. *Protactia* n. sp., Key islds., *Clinteria* n. sp. OHAUS (1115), Java, Philippines, Timor, *Rutelidae*, 4 spp. n. OLIVIER (1123), Java, Borneo, *Luciola* and *Curtois*, 3 spp. n. PIC (1182), New Guinea, *Rhinosimus* n. sp. PIC (1183), Philippines, *Adoretus* n. sp. PIC (1186), Java, Sumatra, *Laius*, 3 spp. n. REITTER (1244), Java, *Scleron* n. sp. RITSEMA (1271), Borneo, *Apogonia*, 4 spp. n. RITSEMA (1275), Sumatra, *Cryptoderma* n. sp. SCHWARZ (1369), Sumatra, *Hemiptera* sp. n. VETH (1547), Sumatra, *Cryptoderma* n. sp. WEISE (1608), New Guinea, *Dactylispa* n. sp. ZANG (1655), Padang and Palawan *Passalidae*, 2 spp. n. ZANG (1659), Amboyna, *Analaches* n. sp. ZANG (1663), *Passalidae*, Borneo, 3 spp. n., Andamans, 1 sp. n. ZANG (1665), *Passalidae*, 7 spp. n. ZANG (1667), Sumbawa and New Guinea, *Passalidae*, 2 spp. n.
Hymenoptera. ANDRÉ (24), Celebes, New Guinea, *Mutillidae*, 4 spp. n. ASHMEAD (31), Philippines, 28 n. spp. ASHMEAD (32), Philippines, *Fossores*, *Formic.*, *Ichn.*, *Bracon.*, *Proct.*, *Cynip.*, 23 spp. n. ASHMEAD (33), Philippines, *Parasitica*, 27 n. spp. ASHMEAD (34), Philippines, *Vespidae*, *Ichneum.*, *Bracon.*, *Chalcid.*, *Proct.*, *Cynipidae*, n. spp. DU BUYSSEN (233), Java and Sumatra, *Ischnogaster*, 2 spp. n. CAMERON (240), Borneo, *Evanidae*, *Bracon.*, *Ichneum.*, 11 spp. n. CAMERON (245), Borneo, *Ichneumonidae*, 3 genn. n. CAMERON (265), *Ichneumonidae*, *Braconidae*, 10 spp. n. CAMERON (266), *Vespidae* and *Fossores*, 17 spp. n. CAMERON (267), Borneo, *Iphiaulax* and *Chauliota*, 30 spp. n. CAMERON (268), Borneo, *Chalcis* n. sp. CAMERON (269), Borneo, *Apidae*, *Odynerus*, *Fossores*, *Ichneumon*, *Bracon*, *Evan.*, *Chalcid.*, *Siricidae* spp. n. COCKERELL (326), Ternate, *Crocisa* n. sp. COCKERELL (329), Sumatra, *Bombus* n. sp. EMERY (493), Borneo, Timor, *Formicidae*, 3 spp. n. ENDERLEIN (498), Sumatra and Philippines, *Gastrotheca*, *Spinaria* n. spp. and n. g. ENDERLEIN (502), Sumatra, Borneo, *Evania*, 3 spp. n. FOREL (592), Java, *Formicidae*, 21 spp. n. FRIESE (601), *Crocisa*, 7 spp. n. FRIESE (602), Sunda islds., *Megachile* sp. n. MOCSÁRY (1055), Java, Borneo, New Guinea, Waiglou, *Rhyssa* soc., 5 spp. n. SZÉPLIGETI (1465), Java, New Guinea, Celebes, *Ophonionidae*, 10 spp. n. SZÉPLIGETI (1466), *Braconidae*, many spp. n.
Lepidoptera. BASTELBERGER (80), Borneo, *Bulonga*, Sumba, *Abraxas*, sp. n. BASTELBERGER (82), Borneo, Obi, *Dysphania*, 3 spp. n. BASTELBERGER (83), *Dysphania*, 4 spp. n. BETHUNE-BAKER (110), New Guinea, *Leucania*, 2 spp. n. BETHUNE-BAKER (111), New Guinea, *Leucania* n. sp. FRUHSTORFER (621), Toli-toli, *Ismene* n. sp. FRUHSTORFER (622), New Guinea *Tenaris*, Mafor and Jobi *Cethosia*, n. sp. FRUHSTORFER (623), Kaju, *Tenaris* sp. n. HAMPSON (715) Java and New Guinea, *Hadeninae* n. spp. HAMPSON (716), Java, Borneo, Sala, Sangir, *Syntomiidae*, *Arctiid.*, *Noctuid.*, spp. n. HAMPSON (717), *Noctuidae* n. spp. PIEPERS & SNELLEN (1203), Java, *Lithosiidae*, *Agaristidae*, list. ROTHSCHILD & JORDAN (1307), British New Guinea, n. spp. of *Nymphal.*, *Satyr.*, *Pierid.*, *Lycen.*, *Erycin.*, *Chalcos*, *Hepialid.*, *Bombyc.*, *Noct.*, *Geometr.*, *Pyral.* SWINHOE (1459), Borneo, *Chalcos*, *Drepan.*, *Limacod.*, *Lymantre.*, *Noctuidae*, *Agathia*, spp. n.; New Guinea, *Zethes*, *Hypena*, spp. n. SWINHOE

(1460), Borneo, Sumatra, *Phacosia* n. sp., *Ctenane* n. g. *Lithos*. SWINHOE (1461), *Heterocera*, 7 spp. n. SWINHOE (1462), *Hesperiidae*, *Aganaidae*, *Arcuid.*, *Noctuidae*, *Epiplema*, n. spp. THIERRY-MIEG (1493), *Geometridae*, 4 spp. n. WARREN (1569), Sumatra, Batchian, New Guinea, Christmas isld., *Thyrididae*, *Epiplem.*, *Geometr.*, 7 spp. n. WARREN (1574), *Geometridae* 15 spp. n., *Epiplema* 3 spp. n.

Diptera. BRUES (201), New Guinea, *Phoridae*, 7 spp. n. LUDLOW (984), Philippines, *Culicidae* n. genn., n. spp. MEIJERE (1024), Java, *Siphonella* n. sp. SPEISER (1437), Philippines, *Olfersia* n. sp. THEOBALD (1477), New Guinea, *Culicidae*, 14 spp. n.

Hemiptera. BREDDIN (180), Java, *Heteroptera*, 21 spp. n. BREDDIN (181), Banguey, fauna, 11 n. spp., *Pentat.*, *Coreid.*, *Lygaeid.*, *Reduv.*, *Cicad.*, *Fulg.*, *Jassid.* BREDDIN (183), *Calliphara* and *Chrysocoris*, 5 spp. n. BREDDIN (185), Java, *Micronecta*, 5 spp. n. DISTANT (422), Philippines, Borneo, New Guinea, *Dundubiaria*, 6 spp. n. DISTANT (423), Java, *Kamalata* sp. n. DISTANT (425), Celebes, Philippines, *Cicadidae* sp. n. DISTANT (424), Java, *Mogannia* n. sp. DISTANT (428), Java, n. g. *Cicadidae*. DISTANT (429), Java, Borneo, Nias, New Guinea, *Cicadidae* n. spp., *Pyrops* and *Fulgora* n. sp. DISTANT (430), Borneo, Sunda islds., *Cicadidae*, 2 spp. n. DISTANT (431), Borneo, *Cosmopsaltria* sp. n. HORVÁTH (774), New Guinea, *Berytidae*, 2 spp. n. JACOBI (805), *Cercopidae*, 19 spp. n. KIRKALDY (862), Philippines, *Micronecta* sp. n. MONTANDON (1058), Philippines, *Ranatra* n. sp. SCHMIDT (1332), *Ricaniidae*, 5 spp. n. SCHMIDT (1333), Sumatra, Borneo, *Fulgoridae*, 6 spp. n. SCHOUTEDEN (1340), New Guinea, *Coleotichus* sp. n. SCHOUTEDEN (1344), Java, *Graphosomini* n. g.

Coccoidea. GREEN (688), Java, 4 spp. n. TRICHOPTERA. ULMER (1517), Sumatra, etc., 8 spp. n. ULMER (1518A), Borneo, Java, 2 spp. n. ULMER (1519), Java, 5 spp. n.

Perlidae, *Ephemeridae*. KLAPOLEK (866), Java sp. n.

Termitidae. DESNEUX (401), Borneo, *Termes* n. sp. DESNEUX (402), New Guinea, 8 spp. n.

Thysanoptera. ASHMEAD (37), Philippines, *Thrips* n. sp.

Thysanura. ESOHERICH (525), *Lepismatidae*.

Orthoptera. BOLÍVAR (129), New Guinea, *Conocephalides*, 10 spp. n. BOLÍVAR (130), *Atractomorphinæ* spp. n. BOLÍVAR (130), Obi, Lombok, New Guinea, *Pyrgomorphidae*, 2 spp. n. BOLÍVAR (130), Borneo, Engano, New Guinea, *Pyrgomorphidae*, 8 n. spp. BOLÍVAR (130), Sumatra, *Orthacrinæ*, 2 spp. n. BURR (219), Java, Mentawai, Batchian, *Forficulidae*, 3 spp. n. BURR (220), Java, *Labia* n. sp. DOHRN (443), *Conocephalides*, 10 spp. n. NAVÁS (1084), Philippines, *Hedotettix*, 2 spp. n.

8. AUSTRALIA and TASMANIA. (For New Zealand see 2. Insular.)

Insecta. WALKER (1563), Sydney, field notes.

Coleoptera. BLACKBURN (123), *Liparochrus*, *Systellopides*, *Liparetrus* n. spp. BOILEAU (126), *Lucanidae*, 5 spp. n. CARTER (284), *Heteromera*, 14 spp. n. LEA (924), *Cryptorhynchidae*, 8 spp. n., n. g. LEA (925), Austr. and Tasmania, *Curculionidae*, 34 spp. n. LEA (926), N. S. Wales, *Illaphanus* sp. n. LEA (928), *Nephritis*, *Ptinidae* n. g., *Tribolium* sp. n. PERKINS (1152), *Stylopidae* n. spp. SLOANE (1410), *Scaritini*, revision with n. spp. SLOANE (1411), *Cicindela*, 5 spp. n. SLOANE (1412), distribution and list, Australian *Carabinae*.

Hymenoptera. ANDRÉ (24), *Ephutomorpha*, 5 spp. n. ANDRÉ (26), Sydney, *Formicidae*, 2 spp. n. BRADLEY (167), S. Australia, *Megalyra* sp. n.

CAMERON (265), *Stephanus*, *Megalyra* n. sp. COCKERELL (326), *Apidae*, novelties, 5 spp. n. COCKERELL (327), and Austr. Tasmania, *Apidae*, 9 spp. n. COCKERELL (328), *Apidae*, 4 spp. n. COCKERELL (329), *Apidae*, 11 spp. n. COCKERELL (330), Austr. and Tasmania, *Apidae*, 20 spp. n.

COCKERELL (331), Austr. and Tasmania, *Apidae*, 10 spp. n. COCKERELL (334), *Nomia*, 7 spp. n. COCKERELL (335), *Apidae*, 7 spp. n. COCKERELL (336), *Apidae* n. g. FRIESE (601), *Crocisa*, 2 spp. n. FROGGATT (612), *Chalcididae*, 2 spp. n. KIEFFER (841), *Epyris* n. sp., *Bethylinae* n. g. KONOW (885), Australia and Tasmania, *Tenthredinidae*, 3 spp. n.

MAYR (1017), n. g. *Perilampides*. PERKINS (1150), Queensland, *Dryinidae* genn. and spp. n. PERKINS (1154), Queensland, *Mymaridae* and *Proctotrypidae* n. genn., n. spp. SZÉPLIGETI (1466), *Braconidae*, many spp. n.

Lepidoptera. BASTELBERGER (93), Cooktown, *Dysphania* sp. n. BETHUNE-BAKER (109), *Ogyris* monograph, 1 sp. n. HAMPSON (715), *Hadeninae* n. spp. HAMPSON (717), *Giaura* n. sp. LOWER (980), Austral. and Tasman., *Pyralidae* and *Tineidae*, 27 spp. n. LOWER (981), Austr. and Tasm., *Bombyces*, *Noct.*, *Geometr.*, *Pyral.*, 14 spp. n. LYELL, Victoria, *Ogyris genoveva*, Victorian Natural. xxi, p. 166. MEYRICK (1041), Tasmania, *Dryadaula* sp. n. PERKINS (1151), Queensland n. fam., n. genn., n. spp. SWINHOE (1461), N. S. W., *Anthela* n. sp. TURNER (1509), Austral. and Tasmania, *Pyralidae*, 24 spp. n. WARREN (1574), *Geometridae*, 3 spp. n.

Diptera. BRUES (201), *Aphiocheta*, 3 spp. n. COQUILLETT (367), Victoria, *Culex* sp. n. PERKINS (1153), *Pipunculus*, 26 spp. n. TERRY (1475), Queensland, *Baccha*, 2 spp. n. THEOBALD (1476), Queensland, *Sayomyia* n. sp. THEOBALD (1478), *Culicidae*, 1 sp. n. THEOBALD (1481), Queensland, n. g. *Culicidae*.

Aphaniptera. RAINBOW (1232), *Ceratophyllus* sp. n., *Ctenopsyllus musculi*. ROTHSCHILD (1301), Tasmania, 2 spp. n. ROTHSCHILD (1302), Tasmania, *Stephanocircus* sp. n.

Hemiptera. BERGROTH (97), Queensland, *Pentatomidae*, 5 spp. n. DISTANT (426), *Cicadidae*, 3 spp. n. DISTANT (427), W. Australia, n. g. *Cicadidae*. DISTANT (428), *Homoptera*, 7 spp. n. KIRKALDY (861), Brisbane, *Psyllidae* n. g. KIRKALDY (862), *Micronecta*, 2 spp. n. MELICHAR (1030), *Fulgoridae* n. g. SCHMIDT (1332), Queensland, *Ricanoptera* n. sp. SCHMIDT (1333), *Sephenidae* n. sp. SCHOUTEDEN (1340), *Coleotichus* sp. n. SCHOUTEDEN (1344), Victoria, *Graphosomini*, 2 spp. n. VAN DUZEE (1527), *Pentatomidae*, 13 spp. n.

Coccidae. GREEN (689), Victoria *Coccidae*, 5 spp. n. LEONARDI (936), *Mytilaspis* n. sp.

Trichoptera. ULMER (1518), *Macronema* n. sp. THYSANURA. ESCHERICH (525), *Acrotelsa* n. sp. FROGGATT, P. Linn. Soc. N. S. Wales xxx, p. 259, novelties.

Orthoptera. BOLÍVAR (130), Rockhampton, *Atractomorpha* sp. n. BURR (219), *Gonolabis* sp. n. LEA (927), Tasmania, *Acrophylla* n. sp. REHN (1237), Queensland, *Labia* n. sp. TEPPER (1473), Centr. Austral., *Mantidae* sp. n., *Phasmidae* 6 spp. n.

9. NORTH AMERICA. For Bahamas and Bermudas see 11. Antilles.

Insecta. ALFKEN (16), California, *Hym.* and *Lep.* and flowers visited. COCKLE, Canad. Ent. 1905, pp. 263, 264, Brit. Columbia, hibernating specimens. COCKERELL (350), Colorado, Col., *Coccidae*, *Apidae*, novelties etc. GODMAN (670). LAURENT (920), Utah and Colorado trip. ENGELHARDT, Utah trip, Ent. News Philad. xvi, p. 91. LONGLEY,

pp. 125-127, Ent. News Philad. xvi, Chicago list. SHERMAN & BRIMLEY, N. Carolina expedition, J. E. Mitchell Soc. xx, pp. 134-136; captures, iid. t. c. pp. 141-144.

Coleoptera. BERNHAUER (103), *Borboropora* n. sp. BERNHAUER (105), California, *Aleocharidae*, 8 spp. n. CASEY (285), *Paderini* n. genn., n. spp. CASEY (286), *Cyphrus* n. sp., *Cryptophilus* etc., *Vanonus*, 2 spp. n. CHAGNON, Ent. News Philad. xvi, pp. 35, 36, Canadian *Cerambycidae*, 44 spp. CHITTENDEN (307), *Sphenophorus*, 10 spp. n. CHITTENDEN (308), *Sphenophorus*, 13 spp. n. FALL (538), Revision of *Ptinidae*, numerous n. spp., n. genn. FALL (539), California, *Dystasia* sp. n. FALL (540), *Aphodius*, 2 spp. n. FALL (541), *Tachycellus* and *Glycerius*, 5 spp. n. FALL (542), *Buprest.*, *Elater.*, *Dynast.*, *Ceton.*, *Long.*, n. spp. HOUGHTON, Ent. News Philad. xvi, pp. 50, 51, Summit of Mt. Seward, list. HOUGHTON, Ent. News Philad. pp. 210-213, Delaware at light. KEEN, Canad. Ent. 1905, pp. 297, 298, North Brit. Columbia, list. KNAB (870), Illinois, *Donacia* n. sp. KNAB, Ent. News Philad. xvi, p. 230, *Galeruca pomona*. KNAUS, Canad. Ent. 1905, pp. 348-352, Texas, list. OHAUS (1117), Florida, *Strigoderma* n. sp. PIC (1192), Mariposa, *Vrilleta* n. sp. SCHAEFFER (1323), N. Am. incl. Lower California, *Seydmann.*, *Pselaph.*, *Parnidae*, *Buprest.*, *Cerambyc.*, *Chrysomel.*, *Meloidae*, *Curculionidae* spp. n. SCHAEFFER (1324), novelties, n. spp. *Coccinellidae*, *Erotylidae*, *Nitid.*, *Buprest.*, *Clerid.*, *Melolonth.*, *Ceramb.*, *Chrysomel.*, *Lagriidae*, *Cistel.*, *Cure.* SCHAEFFER (1326), *Statira*, 2 spp. n. SKINNER (1408), Arizona, *Plusiotis*, *Cleridae*, *Ceramb.* spp. n. SLOSSON, Ent. News Philad. xvi, pp. 67-71, Biscayne Bay, just one log. WEBB (1592), Washington, *Desmocerus* n. sp. WICKHAM (1629), *Cotalpa* n. sp. WICKHAM (1630), *Cicind.*, *Aphodius*, *Gyascutus*, *Hydnocera*, *Zonitis*, *Elaphidion* sp. n.

Hymenoptera. ANDRÉ (25), Arizona, *Rhopromutilla* sp. n. BAKER (65), California and Nevada, *Odontophotopsis*, 5 spp. n. BAKER (66), *Photopsis* and *Chyphotes*, 13 spp. n. BRADLEY (166), Washington, *Deraidontus* n. sp. BRADLEY (168), *Cænocephalus*, 2 spp. n. BRADLEY (169), New York, *Ropronia* n. sp. BRUES (199), *Proctotrypidæ*, 6 spp. n. CAMERON (274), Nevada and California, *Paratiphia*, 6 spp. n. CAMERON (275), California and Nevada, *Eumen.* and *Vesp.*, 6 spp. n., *Ichneumon.*, 10 spp. n., *Brasema* sp. n. COCKERELL (324), *Apidae*, 4 spp. n., *Proctotrypes* sp. n. COCKERELL (325), Rocky Mts., *Melissodes*, 9 spp. n. COCKERELL (326), *Apidae*, 3 spp. n. COCKERELL (333), Colorado, *Apidae*, 3 spp. n. COCKERELL (337), New Mexico and California, *Apidae*, 3 spp. n. COCKERELL (339), Colorado, *Apidae*, 3 spp. n. COCKERELL (340), Texas, *Perdita* n. sp. COCKERELL (342), *Diadasia*, 1 n. sp. COCKERELL (343), Wisconsin, *Nomada*, 2 spp. n. COCKERELL (344), Texas, *Apidae*, 3 spp. n. COCKERELL (345), California, 6 spp. n., *Andrena* and *Osmia*. COCKERELL (347), Arizona and New Mexico, *Melissodes*, 8 spp. n. COCKERELL (348), S. California, *Apidae*, numerous n. spp. COCKERELL (349), *Apidae*, 9 spp. n. COCKERELL, Psyche xii, p. 90, *Bombus medius* not N. American. GIRAULT (662), *Anaphes* n. sp. GIRAULT (663), *Paracentrobia*, *Gonatocerus*, from *Anthonomus* eggs, sp. n. GIRAULT (668), *Myrmaridae*, 2 spp. n. KIEFFER (847), *Gasteruption*, *Callirhytis*, 9 spp. n. KOHL (875), S. America, specially Chile, *Odynerus* and *Fosoria*, 18 spp. n. KONOW (884), Oran, *Emphytus* n. sp. KRIEGER (895), *Neotheronia* sp. n. LOVELL (977), Maine, *Halictus*, 4 spp. n. LOVELL (978), Maine, *Halictus*, 3 spp. n. LOVELL & COCKERELL (979), Maine, *Nomada*, 2 spp. n. NASON, Ent. News Philad. xvi, pp. 145-152, 168-172, Algonquin, Illinois, *Ichneumonidae*, extensive list. NASON, II *Alysiidae*, *Braconidae*, t. c. pp. 293, 298. PERKINS (1150), *Dryinidae* spp. n. ROBERTSON (1284), Illinois, *Apidae*, 5 spp. n. SWENK (1457), *Colletes*, 3 spp. n. TITUS

- (1497), *Megachile* sp. n. TITUS (1497), *Anthidium*, 2 spp. n. VIERECK (1549), Oregon etc., *Apidae*, 3 spp. n. WHEELER (1621), *Formica* 5 spp. n. WHEELER (1624), New Jersey, *Formicidae*, Catalogue, 2 spp. n. WHEELER (1628), Mt. Washington, *Formicidae*.
- Lepidoptera*. BARNES (77), 5 spp. n. BROOKS, Ent. News Philad. xvi, p. 85, West Virginia Mountain *Rhopalocera*. BRUES, Ent. News Philad. xvi, p. 11, *Eubagis dionis*. DIETZ (419), *Amydriinae* and *Tineinae*, many spp. n. and genn. n. DIETZ (419), n. spp. DOD, Alberta, list, *Noctuidae* cont. from 1904, Canad. Ent. 1905, pp. 17-28. DYAR (472), Arizona, *Limacodidae*, 2 spp. n. DYAR (474), *Pyralidae*, 18 spp. n., *Tephroclystia* n. sp. DYAR (482), *Amblyscirtes* and *Megathymus* n. sp. DYAR (483), Nevada, *Oncocnemis* n. sp. ENGEL (517), *Xylina* n. sp. ENGEL (516), Pennsylvania, autumn and winter collecting. FERNALD (555), *Proteoteras* n. sp. FERNALD (556), *Tortricidae*, 3 spp. n. GIBSON, Ottawa *Sthenopis thule*, Ottawa Natural. xix, pp. 117, 118. GIBSON, Canad. Ent. 1905, p. 88, *Simaethis fabriciana*, novelty. GRINNELL, (697), California, *Satyrus*, *Thanaos* n. sp. GRINNELL (698), California, *Lycena* n. sp. GRINNELL, Ent. News Philad. xvi, pp. 134-137, butterflies of Mt. Wilson, S. California, 58 spp. HAMPSON (715), *Hadeninae* n. spp. HAMPSON (717), Florida, *Entelia* n. sp. HEATH, Canad. Ent. 1905, pp. 191, 192, Manitoba, season 1904. HEINDEL (735), *Acleris* n. sp. in gale of *Rhabdophaga*. KEARFOTT (829), *Polychrosis*, 3 spp. n. KEARFOTT (830), N. Carolina, *Tortricidae*, 9 spp. n. KEARFOTT (831), Assiniboina, *Pyralidae*, *Tortricidae*, *Tineidae* n. spp. KEARFOTT (832), *Tortricidae*, 3 spp. n. KEARFOTT (833), Ontario, *Aristotelia* sp. n. KEARFOTT, Canad. Ent. 1905, pp. 205-208, 253-256, 293-296, Manitoba, *Microlepidoptera* list. LYMAN (997), Canada, *Gortyna*, 2 spp. n. MCINTOSH, New Brunswick supplementary list, Bull. Soc. N. Brunswick xxiii, pp. 355-357. MURTFELDT (1081), Minnesota, *Bucculatrix* n. sp. NASON, Ent. News Philad. xvi, pp. 1, 2, Illinois, *Pyral.*, *Tort.*, *Tin.*, short list. PEARSALL (1142), *Euchoea* n. sp. SCHAEFFER (1325), Huachuca Mts., *Bombyces* list. SHAW, S. A., Ent. News Philad. xvi, pp. 323-327, Hampton, New Hampshire *Microlepidoptera*. SKINNER (1406), Arizona, *Crinodes* n. sp. SKINNER (1407), Arizona, *Megathymus* n. sp. SMITH (1415), *Noctuidae*, 10 spp. n. SMITH (1416), *Noctuidae* n. spp. SMITH (1417), *Noctuidae*, 35 spp. n. SOUTHER, Psyche xii, p. 96, Massachusetts, *Catocala*. WARREN (1572), Vancouver, *Sericosema* n. sp. WILLIAMS & GRINNELL (1633), Mt. Diablo, *Melicephria* sp. n. WINN, Canad. Ent. 1905, p. 61, *Pieris brassicae*. WRIGHT (1643), California, *Rhopalocera*, illustrated work.
- Diptera*. ADAMS (6), *Oscinidae*, 4 spp. n. ALDRICH (14), General catalogue. ALDRICH (15), *Dolichopidae*, 10 spp. n. BAKER (61), California and Nevada, various families, 30 spp. n. BUENO, Ent. News Philad. xvi, p. 83, Kansas, *Mixogaster breviventris*. Washington, *Chironomidae*, COCKERELL, p. 236, Entomologist 1905. COQUILLETT (366), *Nematocera*, 24 spp. n.; also *Ceratopogon*, 18 spp. n. COQUILLETT (369), New Mexico, *Limnophila* n. sp. DAECKE (386), New Jersey, *Chrysops*, 2 spp. n. DYAR (480), *Culex* n. sp. DYAR (481), *Culicidae*, novelty and some new localities. FELT (554), *Culex* n. sp. GROSSBECK (701), New Jersey, *Culex*, 2 spp. n. HERRICK, Ent. News Philad. xvi, pp. 281-283, Mississippi, *Culicidae*. HINE (749), *Chrysops* n. sp. JOHANNSEN (820), Aquatic *Chironomidae*, monograph, 38 n. spp. JOHNSON (821), N. Carolina, *Bittacomorpha* n. sp. LUDLOW (985), California, *Taeniorhynchus* n. sp. LUDLOW (986), Illinois, *Finlaya* sp. n. MCINTOSH (1020), New Brunswick, list. MOODIE (1061), Wyoming, *Syrphidae*, Arizona, *Milesia* n. sp. SWENK (1456), *Cuterebra*, 3 spp. n. WASHBURN (1577), Minnesota, *Diptera* of.
- Aphaniptera*. BAKER (53), *Ceratopsyllus* n. sp. BAKER (62),

California, 2 spp. n. ROTHSCILD (1299), *Ceratophyllus*, 17 spp. n.
Hemiptera. BAKER (56), Nevada, *Gnathodus* n. sp. BAKER (59), California, *Eupteryx* n. sp. BAKER (60), California, *Macropsis* n. sp.
 BALL (69), *Homoptera*, 7 spp. n. BALL (70), *Phlepsius* etc., 5 spp. n. BRITTON (192), Connecticut, *Aleurodidae* spp. n. BUENO (209), *Notonecta* sp. n. BUENO (210), Georgia, *Hydrometra* n. sp.
 BUENO (213), *Ranatra* n. sp. COCKERELL (352), Colorado, *Pemphigus* sp. n. COCKERELL (353), Colorado, *Rhopalosiphum nymphææ*.
 HEIDEMANN (732), Washington, *Anasa* n. sp. HEIDEMANN (733), Plummer's Id., *Ceratocombidae* n. g. HEIDEMANN (734), N. York, *Capsidæ*, 1 sp. n. OSBORN (1125), *Fulgoridae*, 5 spp. n. OSBORN (1126), Ohio, novelties, n. spp. SCHOUTEDEN (1344), Colorado, *Graphosomini* n. g. SHERMAN, Ent. News Philad. xvi, pp. 7, 8, North Carolina, *Aradidae*. UHLER (1515), Arizona, *Cicada* sp. n.
Coccidae. COCKERELL (354), Colorado, 3 spp. n. COCKERELL (355), Colorado, *Pulvinaria* n. sp. COCKERELL (357), New Mexico, *Tachardia* n. sp. YORK (1647), Ohio, *Aspidiotus* n. sp.
Trichoptera. MORTON (1075), New York, *Hydroptilidae*, 12 spp. n.
 ULMER (1518A), 4 spp. n.
Neuroptera, BAKER (64), California, *Perla* n. sp., Nevada, *Berotha* n. sp. BANKS (71), N. Carolina, *Trichoptera*, *Panorpidae*, *Perlidae* spp. n. CURRIE (383), Texas, *Brachynemurus* sp. n. NEEDHAM (1092), *Micromus* n. sp.
Perlidae. BANKS (73), 3 spp. n. NEEDHAM (1089), New York, n. g.
Perlidae.
Psocidae. RIBAGA (1264), California n. g.
Termitidae. DESNEUX (401), *Termes* n. spp.
Ephemeroidea. NEEDHAM (1093), Revision with 5 spp. n.
Odonata. OSBURN (1127), Brit. Columbia, annotated catalogue.
 WILLIAMSON, Rockcastle Riv., *Odonata*, Ohio Natural. v, pp. 309, 310.
 CURRIE, Kootenay district, Brit. Columbia, P. ent. Soc. Washington vii, pp. 16-20.
Thysanoptera. HINDS (748), Florida, *Euthrips* sp. n.
Thysanura. ESCHERICH (525), Texas, *Atelura* sp. n. SILVESTRI (1397), Texas, *Nicoletia*, 2 spp. n.
Collembola. FRANKLIN (597), *Entomobrya* sp. n.
Orthoptera. BAKER (63), Western side, list, *Ecanthus* n. spp.
 Lower California, *Acridiidae*, 3 spp. n., see Centr. Amer., BOLÍVAR.
 BRUNER (670), *Acridiidae* spp. n. CAUDELL (287), Arizona, *Forficulidae*, *Acridiidae*, 6 spp. n. CAUDELL (289), California, *Melanoplus*, *Trimerotropis* n. sp. CAUDELL (290), Kansas, *Amblycorypha* n. sp.
 CAUDELL (291), Florida, *Aplopus* n. sp. CAUDELL (292), Indiana, *Bacunulus* sp. n. CAUDELL (294), S. W. Texas, *Anaplecta*, *Phasmid*, *Acrid*, 5 spp. n. CAUDELL, Ent. News xvi, pp. 216-219, Florida, annotated list. DAVIS (390), New Jersey, *Orchelimum*, *Conocephalus*, n. sp. REHN & HEBARD (1242), Florida, *Acridiidae* 2 spp. n., *Locustidae* 4 spp. n., *Gryllidae* sp. n. STEVENSON, Ent. News Philad. xvi, p. 98, Montreal, *Blattidae*. WALKER (1562), Ontario, *Locustidae*, *Ceuthophilus* sp. n.

10. CENTRAL AMERICA (MEXICO to PANAMA incl.).

Coleoptera. BERNHAUER (103), Mexico, *Lispinus* n. sp. BERNHAUER (104), Costa Rica, *Brachydirus* sp. n. CASEY (285), incl. Lower California, *Paderini* n. genn., n. spp. CASEY (286), Chihuahua, *Carabus* n. sp. CHAMPION (670), *Circulionidae*, *Cryptorhynchides*, many novelties. FALL (538), Lower California, *Ptinidae* n. spp. FAUVEL (546), *Oxytelus* sp. n. HOPKINS (758), Mexico, *Scolytidae*, 10 spp. n.

LÉVEILLÉ (947), Mexico, *Corticotomus* sp. n. OHAUS (1117), *Rutelidae*, 7 spp. n. PANGELLA (1135), Costa Rica, *Passalidae*, 3 spp. n. PIC (1188), Mexico, *Eupactus* n. sp. SHARP (670), *Chelonarium*, 4 spp. n., *Rhipidandrus*, 2 spp. n. WATERHOUSE (1590), Mexico, *Halecia* sp. n. WEISE (1600), Mexican *Hispidae*, list of, with 5 spp. n. ZANG (1665), *Passalidae*, 2 spp. n. ZANG (1667), Chiapas, *Proculus* n. sp. Lower California, see N. Amer. Col., SCHAEFFER.

Hymenoptera. ANDRÉ (25), *Rhoptrumillula* n. sp. BRUES (199), Mexico, *Anteon* n. sp. CAMERON (242), Panama, n. g. *Larride*. CAMERON (250), Mexico, *Masarinidae*, *Fossoaria*, *Ichn.*, *Bracon*, *Oxyura*, 30 spp. n. CAMERON (251), Mexico, *Fossoaria*, 8 spp. n., *Odynerus* and *Arygonus* n. sp., *Braconidae*, 5 spp. n., *Heptamerocera* sp. n. CAMERON (252), Mexico, *Odynerus*, 4 spp. n. CAMERON (272), *Fossoaria*, *Ichneumon*., *Bracon*, *Proctotryp*., *Chalcid*., 52 spp. n. CAMERON (273), Nicaragua, *Mutillidae*, *Tiphidae*, *Eumenidae*, *Ichneumonidae*, 8 spp. n. COCKERELL (324), Mexico, *Prosopis* sp. n. COCKERELL (341), Oaxaca, *Tripeolus* n. sp. EMERY (494), Costa Rica, *Camponotus* sp. n. KIEFFER (841), Costa Rica, n. g. *Diapriinae*. KRIEGER (895), *Neotheronia* sp. n. MAYR (1017), Mexico, *Andricus* sp. n. MOCSARY (1055), Costa Rica, *Rhyssa* 3 spp. n. PÉREZ (1147), Mexico, *Centris*, *Cælioxys* spp. n. SZÉPLIGETI (1465), Costa Rica, n. g. *Ophioninae*.

Lepidoptera. DOGNIN (438), Costa Rica, *Nacoleia* n. sp. DOGNIN (439), San Salvador, *Dasylophia* n. sp. DOGNIN (442), San Salvador, *Adelocephala* n. sp. DYAR (472), *Limacodidae*, 7 spp. n. HALL, *Rhopalocera*, Entomologist 1905, pp. 228-231. HAMPSON (715), *Hadeninae* n. spp. HAMPSON (716), *Isanthrene* sp. n. HAMPSON (717), Panama, *Ingura* n. sp. and n. g. *Noctuidae*. PACKARD (1131), Jalapa, *Adelocephala* sp. n. SCHAUS (1329), *Bombyces*, Mexico, 8 spp. n., Panama, 2 spp. n., Costa Rica, 1 sp. n. STICHEL & RIFFARTH (1452), *Heliconiidae*, localities. THIEME (1490), Mexico, *Pedaliodes* sp. n. WARREN (1571), *Erosia* sp. n. and *Geometridae*, 3 spp. n. WARREN (1572), *Epiplema*, 2 spp. n., *Geometrid*. many spp. n.

Diptera. ALDRICH (14), General Catalogue. COQUILLETT (366), Mexico, *Ceratopogon*, 2 spp. n. COQUILLETT (371), Mexico and Costa Rica, *Culicidae*, 3 spp. n. HINE (749), Guatemala, *Chrysops*, 3 spp. n.

Hemiptera. BAKER (56), Guatemala and Nicaragua, *Eugnathodus*, 5 spp. n. BAKER (58), Nicaragua, *Erythria*, 4 spp. n. BAKER (58), Nicaragua, *Typhlocybini* n. g. BAKER (59), *Typhlocybini*, 11 spp. n. BAKER (60), Nicaragua, *Macropsis* n. sp. BREDDIN (184), Costa Rica, *Edessa* n. sp. FOWLER (670), *Issidae*, *Dephacidae*, spp. n. KIRKALDY (861), Mexico, *Trioza* n. sp.

Trichoptera. ULMER (1518), Mexico, *Hydropsyche* sp. n. ULMER (1518A), Mexico, *Wormaldia* n. sp.

Neuroptera. BAKER (64), Nicaragua, *Megalomus* n. sp.

Odonata. WILLIAMSON (1635), Account of trip.

Orthoptera. BAKER (63), Nicaragua, *Bostra* and *Cyrtoxipha* n. sp., *Oecanthus* n. sp., *Heterocois* (sic) n. sp. BOLÍVAR (130), Lower California, *Orthacrinae*, 3 spp. n. BRUNER (206), Costa Rica, *Proscopidae*, 2 genn. n. BRUNER (670), *Acridiidae* spp. n. BURR (219), Guatemala, *Forficula* sp. n. REHN (1238), Costa Rica, *Acridiidae*, 18 spp. n. REHN (1239), Costa Rica, list with *Blattidae*, *Phasmidae*, *Locustidae*, *Gryllidae* n. spp.

11. ANTILLES, including BERMUDAS, BAHAMAS, BARBADOS. For Trinidad see 12.

Coleoptera. BERNHAUER (103), Grenada, *Thinobius*, *Parosus* n. sp. OHAUS (1117), S. Domingo, *Pelidnota* n. sp. PIC (1175), Gaudeloupe,

Petalium sp. n. PIC (1182), Cuba, *Eupactus* n. sp. PIC (1192), Guadeloupe, n. g. *Dorecatomini*. SCHAUFUSS (1328), Guadeloupe, *Stephanoderes* sp. n.

Hymenoptera. WHEELER (1620), Bahamas and Antilles, *Formicidae*, lists, n. spp.

Lepidoptera. DRUCE (456), Cuba, *Perrhanaea* sp. n. HAMPSON (715), Jamaica, *Hadeninae* n. sp. HAMPSON (716), Jamaica, *Napata* n. sp., *Eucereon* n. sp., Cuba, *Cincia* n. sp. HAMPSON (717), Cuba, *Eutelia* n. sp. SCHAUSS (1329), Cuba, *Robinsonia*, Jamaica, *Tolyte* sp. n. WARREN (1568), Grenada, *Hemiplisis* sp. n. WARREN (1572), *Geometridae* n. spp.

Diptera. ALDRICH (14), General Catalogue. COQUILLET (366), Cuba, *Ceratopogon* sp. n. COQUILLET (368), Barbados, *Cecidom.* n. sp. COQUILLET (370), Cuba, *Thelairodes* n. sp. COQUILLET (371), Cuba, S. Domingo, St. Thomas, Guadeloupe, *Culicidae*, 4 spp. n. GRABHAM (684), Jamaica, *Culicidae* spp. n. JOHANNSEN (820), St. Vincent, *Chironomus* sp. n. LUDLOW (986), Porto Rico, *Culex* sp. n. THEOBALD (1484), Jamaica, Handbook of *Culicidae*, 1 sp. n.

Thysanura. ESCHERICH (525), *Acrotelsa* n. sp.

Orthoptera. CAUDELL (293), Porto Rico, *Ischnoptera* n. sp. MORSE (1072), Bahamas, *Acriidiidae*, *Locustidae*, *Gryllidae*, 6 spp. n. REHN (1237), Cuba, *Ferficala* n. sp. REHN (1241), Lesser Antilles incl. Barbados, novelties, *Orphulella* sp. n.

12. SOUTH AMERICA, including TRINIDAD.

Coleoptera. BERNHAUER (103), *Staphylinidae*, 7 spp. n. BERNHAUER (104), *Staphylinidae*, 17 spp. n. BOURGEOIS (151), Ecuador, *Lycidae*, 1 sp. n. BRÉTHES (188), Tucumán, *Cyclocephala*, 2 spp. n. BRÉTHES (190), *Lathridiidae* n. g. FAIRMAIRE (535), Argentina, *Heteromera*, 39 spp. n. FAUVEL (545), Argentina, n. tribe *Staphyl.* FAUVEL (546), *Staphylinidae* spp. n. GOUNELLE (679), Tucuman, *Coremia* n. sp. GOUNELLE (680), GOYAZ, *Parozodes* sp. n. HAGEDORN (713), Northern S. America, *Scolytidae*, 8 spp. n. HORN (762), *Tetracha* n. sp. HORN (765), Peru, *Odontochila* sp. n. HORN (772), Amazonas, *Tetracha* n. sp. *Odontochila* n. sp. KERREMANS (835), GOYAZ, *Buprestidae* n. g. LÉVEILLÉ (957), *Trogositidae*, 11 spp. n. LÉVEILLÉ (948) *Trogositidae*, 2 spp. n. LÉVEILLÉ (949), Brazil, *Lophocateres* sp. n. LEWIS (954), *Omalodes*, 2 spp. n. LEWIS (954), Bahia, *Histeridae* n. g. MOSER (1076), Bolivia, *Blaesia* n. sp. OHAUS (1116), Chile and Ecuador, *Anoplognathidae*, 4 spp. n. OHAUS (1117), *Rutelidae*, 39 spp. n. OHAUS (1118), *Spodochlamys*, 4 spp. n., *Anatista* sp. n. OLIVIER (1122), *Macrolampis*, 9 spp. n. OLIVIER (1123), Bolivia, Brazil, *Photuris*, 3 spp. n. PANGELLA (1136), Paraguay and Argentina, *Passalidae*, 4 spp. n. PIC (1170), Peru, *Anthicus*, 3 spp. n. PIC (1175), Brazil, *Petalium* n. sp. PIC (1176), Brazil, *Hylophilus* 7 spp. n. PIC (1182), *Astylos*, *Cathorama*, *Priotoma* n. sp. PIC (1188), *Priotoma* n. sp., *Lanthanus* n. sp. SPAETH (1430), *Cassididae*, 14 spp. n. STIERLIN, Ann. Soc. ent. Belgique 1905, p. 140, S. Patagonia, *Otiorrhynchus antarcticus*. THERY (1489), Guyaquil, *Ectinogonia* sp. n. VACHAL (1526), Chile, *Apidae* n. g. WATERHOUSE (1590), *Buprestidae*, 6 spp. n. WEISE (1609), Bolivia, n. g. *Cassididae*. ZANG (1665), Peru and Bolivia, *Passalidae*, 2 spp. n. ZANG (1667), Venezuela, *Verres* n. sp.

Hymenoptera. ANDRÉ (25), *Mutillidae*, 7 spp. n. BRAUNS (176), Brazil, *Mesostenus*, 2 spp. n. BRÉTHES (187), La Plata, *Ichneumonidae*, 4 spp. n., *Tetrastichus* n. sp. BRÉTHES (188), Tucumán, *Iphiavulax*

- n. sp. BUYSSEN (230), *Odynerus* sp. n. BUYSSEN (231), Bahia, *Charterginus* sp. n. CAMERON (251), *Iphiaulax*, *Agathis*, 6 spp. n. COCKERELL (332), *Ega*, *Augochlora* sp. n. DUCKE (460), Para, *Cleptes*, 2 spp. n. DUCKE (461), Social *Vespidae*, n. genn., n. spp. DUCKE (462), Lower Amazons, *Zethus*, 3 spp. n. DUCKE (463), Obydos, *Melissa* sp. n. EMERY (493), Ecuador, *Ectatomma* sp. n. EMERY (494), *Camponotus*, 9 spp. n. ENDERLEIN (499), *Braconidae*, 4 spp. n. ENDERLEIN (502), Peru and Bolivia, *Evaniidae*, 8 spp. n. FOREL (591), *Formicidae*, 8 spp. n. FRIESE (605), Chile, *Megachile* and *Cetioxyx*, 10 spp. n. HERING (800), Brazil, *Vespidae* monograph, 3 spp. n. KIEFFER (841), Brazil n. g. *Dryinae*. KONOW (884), S. Am. incl. Chile, *Tenthredinidae*, 6 spp. n. KRIEGER (895), *Neotheronia*, 42 spp. n. MOCSÁRY (1055), *Rhyssa*, 7 spp. n. SCHROTTKY (1350), Argentina, Uruguay, Paraguay, Catalogue. SCHROTTKY (1351), Paraguay, *Apidae*, 5 spp. n. SCHULZ (1359), *Trigonalidae*, *Diptera*, *Meliponidae* n. spp. SZÉPLIGETI (1465), *Ophioninae*, 3 spp. n. *Lepidoptera*. CLARK (321), Venezuela, Margarita isld., *Rhopalocera*. DOGNIN (438), *Pyralidae*, *Tortricidae*, *Tineidae*, 61 spp. n. DOGNIN (439), *Notodontidae*, 3 spp. n., *Cossidae*, 2 spp. n., *Lasiocampidae*, 3 spp. n. DOGNIN (440), Peru, *Eucereon*, *Ctenucha*, *Cymbalophora*, *Saturnia*, sp. n. DOGNIN (441), Peru and Colombia, *Hydrius*, *Perophora*, *Edebessa* spp. n. DOGNIN (442), Argentina, *Adelocephala* n. sp. DRUCE (453), *Noctuidae*, 10 spp. n. DRUCE (454), Venezuela and Peru, *Syntomidae*, *Arctiidae*, 26 spp. n. DRUCE (455), N. W. S. Amer., *Notodontidae*, 7 spp. n. DYAR (472), *Limacodidae*, n. genn., n. spp. GODMAN (671), *Satyridae*, 13 spp. n. HAENSCH (712), new *Ithomiinae*. HAMPSON (715), Brazil, Patagonia etc., *Hadeninae* n. spp. HAMPSON (716), third Suppl. to Cat. Lep. Phal., many spp. n., *Syntom.*, *Arct.*, *Noct.* HAMPSON (717), *Noctuidae* n. spp. HAMPSON (718), Amazonas, n. g. *Chrysogininae*. KAYE (828), Brit. Guiana, *Napeogenes* and *Hyrmina* sp. n. ROTHSCHILD (1305), Bolivia, *Papilio* sp. n. SCHAUS (1329), *Bombyces*, about 400 n. spp. STICHEL & RIFFARTH (1452), *Heliconiidae*, localities. THIEME (1490), *Pedaliodes*, 40 spp. n. THIERRY-MIEG (1493), *Geometridae*, 7 n. spp., *Noctuidae* n. g. WARREN (1568), Guiana, *Thyrididae*, 8 spp. n. WARREN (1571), chiefly Peru, *Geometridae*, *Urania*, *Thyrididae*, 68 spp. n. WARREN (1572), *Thyrididae* sp. n., *Epiplemididae*, 3 spp. n., *Geometridae*, many spp. n. WEEKS (1594), Bolivia, lists, *Rhopalocera*, account of trip. *Diptera*. ALDRICH (15), Brazil, *Psilopodinus*, 2 spp. n. BECKER (89), Ile des États, n. g. *Ephydriidae*. BEZZI (114), *Empididae*, catalogue, many spp. n. BRÈTHES (188), Tucuman, *Leptogaster* n. g., *Asilidae*, *Baccha*, *Euxesta* n. sp. BRUES (200), Peru, *Phoridae*, 5 spp. n. COUILLETT (371), Trinidad, *Culicidae*, 2 spp. n. GOELDI (672), Brazil, *Chironomus* n. spp., *Hæmatomyidium* n. g., *Simulium* n. sp. HOLMGREN (756), Peru, *Termitomastidae*, 2 spp. n. RIBEIRO (1265), Minas Geraes, *Nycteribidae* n. g. RÜBSAAMEN (1316), Brazil and Peru, *Cecididae*, galls etc., etc., n. spp. SPEISER (1437), *Lipoptena* sp. n. THEOBALD (1477), *Culicidae*, 2 spp. n. THEOBALD (1478), Brit. Guiana, *Culicidae*, 2 spp. n. *Apuaniptera*. ENDERLEIN (508), Argentina, *Malacopsylla* n. sp. ROTHSCHILD (1301), Brazil, *Pulex* sp. n. *Hemiptera*. SCHMIDT (1333), *Fulgoridae*, 3 spp. n. SCHMIDT (1332), Ecuador, *Sassula* n. sp. BRÈTHES (188), Tucumán, *Jassidae* n. sp. BREDDIN (184), *Pentatomoidea*, 9 spp. n. BERGROTH (99), *Coreidae*, *Reduvidae*, 5 spp. n. MONTANDON (1058), *Ranatra*, 3 spp. n. MONTANDON (1059), *Cryptocerata*, 3 spp. n. KIRKALDY (859), Peru, *Tingidae*, 3 spp. n. JACOBI (807), Peru, *Jassidae*, 50 spp. n. HORVÁTH (774), Peru, *Parajalysus*, 2 spp. n. DISTANT (429), Argentina, n. g. *Tibicinae*. DISTANT (427), Rio Salado, *Derotettix* n. sp. DISTANT (426), Peru and

Chile, *Cicadidae*, 2 spp. n. DISTANT (424), *Cicadidae*, 2 spp. n. DISTANT (423), *Cicadidae*, 9 spp. n. DISTANT (430), Bolivia, *Fulgoridae*, 2 spp. n. DISTANT (425), Peru and Bolivia, *Cicadidae*, 3 spp. n.

Coccidae. COCKERELL, Paraguay, *Lecanium perlatum*, Nature lxxii, p. 397. COCKERELL (338), Paraguay and Chile, *Coccidae*, 3 spp. n.

Trichoptera. ULMER (1517), 26 n. spp. ULMER (1518 A), 11 n. spp. ULMER (1518), Patagonia, *Limnophilus*, n. sp.

Perlidae. ENDERLEIN (504), Tierra del Fuego, 3 n. spp.

Psocidae. ENDERLEIN (497), Argentina, n. g. aff. *Troctes*.

Odonata. FÖRSTER (595), Paraguay, *Libellulidae*, 3 spp. n. NEEDHAM (1090), Brazil, n. g. *Libellulinae*.

Thysanura. ESCHERICH (525), Colombia and Blanquille, *Lepismatidae*, 2 spp. n. SILVESTRIS (1394), Chile, *Thysanura*, 3 spp. n. SILVESTRIS (1397), Venezuela, *Nicoletia* n. sp.

Orthoptera. BOLÍVAR (128), Myrmecophilous *Blattidae*, n. genn., n. spp. BOLÍVAR (130), Pernambuco, n. g. *Atractomorphinae*. BORELLI (145), Paraguay, *Forficulidae*, 5 spp. n. BRUNER (205), Paraguay, *Acriidiidae*, 2 spp. n. BURR (219), *Forficulidae*, 2 spp. n. REHN (1237), Peru and Colombia, *Forficulidae*, 3 spp. n. REHN (1240), Paraguay, n. g. *Acriidiidae*.

PALÆO-ENTOMOLOGY.

Table of the periods of first appearance of fossils, HANDLIRSCH (723). Insects in copal, extraction of, their state of preservation, PROWAZEK (1219).

Diptera and *Hymenoptera* from Madagascar Copal, see MEUNIER (1040) and Systematic.

Monograph of *Psychodidae* in Baltic amber, MEUNIER, Ann. Mus. Hungar. iii, pp. 235-255, pls. vi, vii.

Coleoptera.

ZANG, in SB. Ges. naturf. Berlin, 1905, describes the following *Col.* from Baltic amber.

Platycerus berendti, p. 199, pl. f. 1, n. sp.

Aphodius succini, p. 204, pl. f. 5, n. sp.

Pogonochærus jackeli, p. 233, pl. f. 5, n. sp.

Nothorrhina granulicollis, p. 236, pl. f. 1, n. sp.

Dorcaschema succineum, p. 240, pl. f. 6, n. sp.

Strangalia berendtiana, p. 243, pl. f. 4, n. sp.

Re-examination of Berendt's determinations of *Longicornia* in Baltic amber, ZANG, pp. 232-245, 1 pl., t. c.

Hymenoptera.

Dimorphomyrmex theryi, Baltic amber, EMÉRY, p. 188, Bull. Soc. ent. France 1905, n. sp.

Gonatocerus henneberti, Baltic amber, MEUNIER, p. 2, Miscell. ent. xiii, n. sp.

Limacis armata, Baltic amber, id. p. 3, t. c. n. sp.

Diptera (Cecidomyiidae).

MEUNIER n. g. for *Miastor* of amber, KIEFFER, p. 408, Ann. Soc. Bruxelles xxviii.

Diptera (Psychodidae).

Palaeosycorax n. g. *tertiarie* n. sp., Baltic amber, MEUNIER, p. 50, Miscell. ent. xiii.

Pericoma formosa, p. 243, *speciosa*, p. 244, Baltic amber, MEUNIER, t. c. n. spp.

Psychoda eocenica, Baltic amber, MEUNIER, p. 246, t. c. n. sp.

Trichomyia pulchra, p. 246, *formosula*, *concinna*, p. 247, *decora*, *tenera*, p. 248, *procera*, p. 249, *nova*, *distincta*, p. 250, Baltic amber, MEUNIER, t. c. n. spp.

Diplonema crassicornis, Baltic amber, MEUNIER, p. 251, Ann. Mus. Hungar. iii, n. sp.

Sycorax tumultuosa, *prompta*, Baltic amber, MEUNIER, p. 253, t. c. n. spp.

Eatonisca n. g. *tertiaria* n. sp., Baltic amber, MEUNIER, p. 253, t. c.

Phlebotomus tipuliformis, Baltic amber, MEUNIER, p. 254, t. c. n. sp.

Diptera (*Mycetophilidae*).

MEUNIER, Ann. Soc. Bruxelles, gives a table of fossil *Mycetophilidae*, pp. 93-100, and describes the following new forms from Baltic amber:

Mycetobia calida, p. 101, t. c. n. sp.

Macrocerca longicornis, *abundans*, p. 102, *ciliata*, *filiformis*, p. 104, *elegantissima*, p. 105, t. c. n. spp.

Platyura kunowi, p. 107, *verallii*, p. 108, *graciosa*, p. 109, *moniliformis*, p. 110, *ectorsii*, p. 111, *mikii*, *distincta*, p. 112, *ceroplatoides*, *ceroplatites*, p. 114, t. c. n. spp.

Asindulum longipalpis, p. 115, *girschneri*, *curvipalpis*, p. 116, *elegantulus*, p. 117, t. c. n. spp.

Sciophila helmi, p. 124, *subquadrata*, *crassicornis*, p. 125, t. c. n. spp.

Empheria minor, p. 126, *major*, p. 127, t. c. n. spp.

Polypleta filipes, p. 127, t. c. n. sp.

Ceroptatus major, p. 183, t. c. n. sp.

Palaeoempalia crassipes, p. 128, *brongniarti*, *succini*, p. 129, *mutabilis*, *broeckii*, p. 130, *cylindrica*, p. 184, t. c. n. spp.

Empalia subtriangularis, p. 131, t. c. n. sp.

Loewiella indistincta, *incompleta*, p. 132, *tenebrosa*, *ciliata*, p. 133, *mucronata*, *asinduloides*, p. 134, *empalioides*, p. 135, t. c. n. spp.

Lasiostoma curvipetiolata, p. 135, t. c. n. sp.

Tetragoneura elongatissima, *elongata*, p. 136, *rectangulata*, *glabra*, p. 137, *borussica*, *gracilis*, p. 138, *minuta*, p. 139, t. c. n. spp.

Syntemna elongata, *pinites*, p. 150, *compressa*, p. 151, *subcylindrica*, p. 152, *subquadrata*, *sciophiliformis*, p. 153, t. c. n. spp.

Palaeoannaclinia n. g. *curvipetiolata*, p. 154, *distincta*, *affinis*, p. 155, MEUNIER, t. c. n. spp.

Proanaclinia n. g. *giebeli*, *gibbosa* n. spp., MEUNIER, p. 156, t. c.

Anachileia n. g. *anacliniformis*, p. 157, *sylvatica*, *gazagnairei*, p. 158, *dissimilis*, p. 159, MEUNIER, t. c. n. spp.

Palaeophthinia n. g. *aberrans* n. sp., MEUNIER, p. 160, t. c.

Archeboletina n. g. *tipuliformis* n. sp., MEUNIER, p. 160, t. c.

Palaeoboletina n. g. *grandis*, p. 161, *elongatissima*, p. 162, n. spp., MEUNIER, t. c.

Proboleptina n. g. *syntemniformis* n. sp., MEUNIER, p. 162, t. c.

Boletina anacliniformis, p. 163, *onstaleti*, *pilosa*, *fimbriata*, p. 164, *hirta*, p. 165, *hirtella*, *subhirta*, p. 166, *conspicua*, *serrata*, p. 167, t. c. n. spp.

Proneoglyptoptera n. g. *eocenica* n. sp., MEUNIER, p. 169, t. c.

Neoglyptoptera curvipetiolata, p. 170, *longipetiolata*, p. 170, *crassipalpis*, *longipalpis*, p. 171, t. c. n. spp.

Palaeodocosia n. g. *brachypezooides* n. sp., MEUNIER, p. 172, t. c.

Docosia petiolata, p. 173, *varia*, *subtilis*, p. 174, t. c. n. spp.

Allodia fungicola, *succinea*, p. 175, *separata*, *brevicornis*, p. 176, t. c. n. spp.

Brachycampta extincta, p. 177, *antiqua*, *procera*, *tomentosa*, p. 178, t. c. n. spp.

Palaeotrichonta n. g. *brachycamptites* n. sp., MEUNIER, p. 179, t. c.

- Trichonta brachycamptoides*, p. 179, *crassipes*, p. 180, t. c. n. spp.
Phronia ciliata, t. c. p. 180, n. sp.
Palaeoepicypta n. g. *longiculcar* n. sp., MEUNIER, p. 181, t. c.
Mycothera cordyliformis, *agilis*, p. 182, t. c. n. spp.
Dynatosoma crassicornis, p. 172, t. c. n. sp.
Azana rarissima, p. 184, t. c. n. sp.
Acnemia bolsiusi, p. 185, t. c. n. sp.

Diptera (Chironomidae).

MEUNIER, in the same work, Ann. Soc. Bruxelles xxviii, describes the following new Chironomidae from Baltic amber

- Chironomus vagabundus*, p. 209, *tenebrosus*, *elegantulus*, p. 210, *umbraticus*, *meticulosus*, p. 211, *umbrosus*, *inglorius*, p. 212, *subobscurus*, *uliginosus*, p. 213, *tenebricosus*, *abietarius*, p. 214, *paludosus*, *uliginosus* (sic), p. 214, *lacunus*, *lacus*, p. 216, t. c. n. spp.
Cricotopus crassicornis, p. 216, *antiquus*, p. 217, *amniculus*, *alluvionis*, p. 218, *pygmæus*, *delicatus*, p. 219, *robustus*, *permutabilis*, p. 220, *variabilis*, *pulchellus*, p. 221, *ambiguus*, p. 222, *dilapsus*, *abiegnus*, p. 223, *paganus*, *insolitus*, p. 224, *saltuosus*, *coniferus*, p. 225, *extinctus*, *nemorivagus*, p. 226, *minutissimus*, *minutus*, p. 227, t. c. n. spp.

- Tanytarsus insularis*, p. 228, *wulpii*, *maritimus*, p. 229, t. c. n. spp.
Eurycnemus vulgaris, p. 229, *stagnum*, *tenellus*, p. 230, *appendiculatus*, *hyalinus*, *pilosellus*, p. 231, t. c. n. spp.
Campylocadius flexuosus, *sinuosus*, p. 232, t. c. n. spp.
Tanypus fusiformis, p. 233, *porrectus*, *compactus*, p. 234, *subrotundatus*, *eridanus*, p. 235, *longicornis*, *parvus*, p. 236, *filiformis*, p. 237, t. c. n. spp.

- Ceratopogon turbinatus*, *unculus*, p. 238, *piriformis*, *prominulus*, p. 239, *eminens*, *defectus*, *speciosus*, p. 240, *flagellus*, p. 241, *elongatus*, *cothurnatus*, p. 242, *lacus*, p. 243, *falcatus*, p. 244, *sinuosus*, *spinosus*, p. 245, *forcipiformis*, *obtusus*, *gracilitarsis*, p. 247, t. c. n. spp.

Diptera (Muscidae acal.).

- Agromyza minuta*, p. 90, *aberrans*, p. 91, Baltic amber, MEUNIER, Ann. Soc. Bruxelles xxix, n. spp.

Psocidae.

- Amphientomum colpolepis*, p. 577, *leptolepis*, p. 580, Prussian amber, ENDERLEIN, Zool. Anz. xxix, n. spp.

III. SYSTEMATIC.

N.B.—The reference numbers collected under the headings of the various groups refer to "Titles" on pp. 5-86, and are intended to give, in each case, a complete list of all memoirs containing anything of importance in connection with the group.

Table of affinities of winged Insects, VOSS, Zeitschr. wiss. Zool. lxxviii, p. 736.

List of Insects that have been found in copal, MEUNIER, pp. 204-209, Rev. Sci. Bourbonnais 1905.

Introduction to N. American entomology, KELLOG (834): includes some general chapters, e.g. Insects and flowers, Insects and disease, Colour and its uses.

Malpighian tubes, no. of in the Orders, structure and function, VENEZIANI (1536).

(A.) COLEOPTERA.

Corrections to Munich Cat. in relation to Klug's nomenclature in Insekten Madagaskar's, GEBIEN (645).

Wing-nervures of *Coleoptera*, KEMPERS, Tijdschr. Ent. Verslag, pp. li-lv.

Defensive glands, BORDAS (142).

Morphology of abdomen ♀, WANDOLLECK (1565).

Anomalous larva in *Yucca*, California, BARKER, pp. 117-121, cuts, P. ent. Soc. Washington vii.

CICINDELIDÆ.

[Memoirs relating to *Cicindelidae*: HEATH (731), HORN (762-772), MAINDRON & FLEUTIAUX (1002), SLOANE (1411), WICKHAM (1630).]

Cicindelidae of S. India, habits etc., MAINDRON & FLEUTIAUX, Ann. Soc. ent. France 1905, pp. 1-19.

A list of *Cicindelidae*, with varr. n., HORN (762).

Cicindelidae of Western France, HOULBERT & MONNOT (785).

Herbivorous [?] *Cicindelidae*, HORN, p. 172, Deutsche ent. Zeitschr. 1905.

Larvae burrowing in stems and twigs, SHELFORD, p. lxxii, P. ent. Soc. London 1905.

Cicindela japonica vatr. p. 185, *germanica*, var. p. 186, BEUTHIN, Soc. ent. xix; *C. reducta* Motsch. = (*pudibunda* Boh.), *C. chersonensis* Motsch. is small *sahlbergi*, HORN, p. 296, Deutsche ent. Zeitschr. 1905; *C. peringueyi* *immaculipennis* subsp. n., HORN, p. 151, Deutsche ent. Zeitschr. 1905; *C. hybrida* and Siberian forms, validity of, *C. transbaicalica magnifica* subsp. n., p. 156, HORN, pp. 153-159, Deutsche ent. Zeitschr. 1905; *C. viridilabris* var. n. *fuscocuprascens*, p. 60, *belli* var. n. *umbropolita*, p. 61, HORN, Deutsche ent. Zeitschr. 1905; *C. discrepans*, pl. 1, f. 3, *rugosiceps*, f. 4, *malabarica*, f. 5, p. 14, MAINDRON & FLEUTIAUX, Ann. Soc. ent. France 1905.

C. haftigeri, E. Africa, HORN, p. 281, Stettin ent. Zeit. lxvi; *C. hauserana*, p. 143, *ocellifera*, p. 144, E. Africa, HORN, Deutsche ent. Zeitschr. 1905; *C. bellana*, Kurrachee, HORN, p. 63, Deutsche ent. Zeitschr. 1905; *C. excisilabris*, New Guinea, HORN, p. 160, Deutsche ent. Zeitschr. 1905; *C. hackeri*, p. 229, *doddi*, p. 230, *plebeia*, p. 232, *curvicollis*, p. 233, Australia, SLOANE, P. Linn. Soc. N. S. Wales xxx; *C. parowana*, Utah, WICKHAM, p. 165, Canad. Ent. 1905 : n. spp.

Collyris saundersi continentalis subsp. n., HORN, p. 295, Deutsche ent. Zeitschr. 1905.

C. planifrons, Ceylon, p. 293, *maindroni*, Travancore, p. 294, *contracta*, Siam, p. 295, HORN, Deutsche ent. Zeitschr. 1905, n. spp.

Derocrania longesulcata, pl. i, f. 1, p. 8, MAINDRON & FLEUTIAUX, Ann. Soc. ent. France 1905.

Euryoda paradoxa, pl. i, f. 2, p. 9, MAINDRON & FLEUTIAUX, t. c.

Megacephala, spp. doubted, *M. regalis* *baby* subsp. n., HORN, p. 159, Deutsche ent. Zeitschr. 1905.

M. steinheili, S. America, HORN, p. 51, Index Cicind., n. sp.

Odontochila kigonserana, E. Africa, p. 278, *cicindeloides*, Madagascar, p. 279, HORN, Stettin ent. Zeit. lxvi; *O. curvipennis*, Amazons, HORN, p. 220, Notes Leyden Mus. xxv; *O. eurytarsipennis*, Peru, HORN, Deutsche ent. Zeitschr. 1905, p. 148 : n. spp.

Ophyrodera distanti, Angola, HEATH, p. 97, f. 1, Entomologist 1905, n. sp.

Oxygonia, characters, with notes on *Odontochilini*, HORN, pp. 145-148, Deutsche ent. Zeitschr. 1905.

Pogonostoma septentrionale simplex subsp. n., FLEUTIAUX, p. 65, Deutsche ent. Zeitschr. 1905.

P. fleutiauxi, Madagascar, HORN, p. 276, Stettin ent. Zeit. lxvi, n. sp.

Tetracha carolina in Baltic amber, ZANG & HORN, SB. Ges. naturf. Berlin 1905.

T. lateralis Amazons, p. 219, HORN, Notes Leyden Mus. xxv, n. sp.

Therates dohertyi, Assam, HORN, p. 277, Stettin ent. Zeit. lxvi, n. sp.

Tricondyla (Derocrania) brevicollis, Trichinopoly, HORN, p. 152, Deutsche ent. Zeitschr. 1905; *T. (Derocrania) agnes*, Ceylon, HORN, p. 64, t. c. : n. spp.

CARABIDÆ.

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graullatus, *expansus* var. n. p. 304, LAPOUGE, Bull. Mus. Paris 1905;

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Bull. Mus. Paris 1905; *C. neumayeri* var. n. *calabrus*, FIORI, p. 78,

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- Calosoma inquisitor* var. n. *funerea*, RAGUSA, p. 288, Natural. Sicil. xvii.
- Carenidium purpuratum*, Queensland, SLOANE, p. 128, P. Linh. Soc. N. S. Wales xxx, n. sp.
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- Leistus*; classification of, with subgg. n. *Leistophorus*, p. 213, *Euleistulus*, *Acroleistus*, p. 214, REITTER, Wien. ent. Zeit. xxiv.
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- T. conformis*, *turbatus*, N. America, FALL, p. 173, t. c. n. spp.
- Temnostega* n. g. *Trechini*, p. 719, *antarctica* n. sp., Crozet Ids., p. 720, ENDERLEIN, Zool. Anz. xxviii.
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DYTISCIDÆ.

[Cf. ABEILLE (5), CHOBAUT (309), PEYERIMHOFF (1161), RÉGIMBART (1234, 1235), ROBERTS (1282), ZAITZEV (1649, 1650).]

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Herophydrus erythræus, Africa, RÉGIMBART, p. 203, Bull. Soc. ent. Ital. xxxvi, n. sp.
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Hydrovatus spissicornis, Erythrea, RÉGIMBART, p. 207, t. c. n. sp.

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HYDROPHILIDÆ.

[Cf. DEVILLE (410), FIORI (569), PERAZZO (1145), PIC (1189), RÉGIMBART (1234).]

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Hydrena gracilis var. n. *samnitica*, FIORI, p. 248, Riv. Col. ital. ii.

H. pici, *lepturi*, *numidica*, Algeria, DEVILLE, p. 2, Echange No. 248, suppl.; *H. explanata*, Algeria, PIC, p. 145, Echange xxi; *H. abyssinica*, *erythrea*, Africa, RÉGIMBART, p. 223, Bull. Soc. ent. Ital. xxxvi : n. spp.

Hydrochus perforatus, Erythrea, RÉGIMBART, p. 220, t. c. n. sp.

Hydrophilus piceus, the variation of, PERAZZO, Atti Acc. Torino xl, pp. 885 & 1089, 1 pl.

Laccobius erlangeri, *propinquus*, Erythrea, RÉGIMBART, p. 218, Bull. Soc. ent. Ital. xxxvi, n. spp.

Limnobioides conoideus, Erythrea, RÉGIMBART, p. 219, t. c. n. sp.

Ochthebius atratulus, p. 221, *andreinii*, p. 222, Erythrea, RÉGIMBART, t. c. n. spp.

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STAPHYLINIDÆ.

[Cf. BERNHAUER (102–105), BILLARD & BRUYANT (117), CASEY (285), FAUVEL (544–547, 549, 550), LUZE (992–995), PEYERIMHOFF (1160), PORTA (1213, 1214), REITTER (1249, 1251, 1254), WASMANN (1585, 1588).]

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Acalophaena compacta, Arizona, *horridula*, Mexico, CASEY, p. 146, t. c. n. spp.

Acanthoglossa hova, *longiceps*, Madagascar, FAUVEL, p. 158, Rev. Ent. franc. 1905, n. spp.

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- A. (Rheochara) fenyesi*, California, BERNHAUER, p. 255, Deutsche ent. Zeitschr. 1905, n. spp.
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- Amaurodera* n. g. for *Falagria veluticollis* Motsch., *opacicollis* Kr., and *Astibus opacicollis* Epp., FAUVEL, p. 142, t. c.
- Amaurodera kraepelini*, Java, FAUVEL, p. 35, Mt. Mus. Hamburg xxii, n. spp.
- Ancaeus nitidissimus*, Engano, BERNHAUER, p. 10, Deutsche ent. Zeitschr. 1905, n. spp.
- Anchocerus* n. g. near *Acylophorus birmanus* n. sp., Burma, FAUVEL, p. 141, Rev. Ent. franc. 1905.
- Ancyrophorus emarginatus*=(*Psilotrichus elegans* Luze), BERNHAUER, p. 596, Verh. Ges. Wien 1905.
- Anisolinus raffrayi*, p. 180, *anthracinus*, p. 181, Madagascar, FAUVEL, Rev. Ent. franc. 1905, n. spp.
- Apteralium* n. g. for part of *Lathrobium*, p. 77, *A. carolinae* n. sp., N. America, p. 78, CASEY, Tr. Ac. St. Louis xv.
- Astenus perangustus*, p. 153, *punctipennis*, *perrieri*, p. 154, *psilographus*, p. 155, Madagascar, FAUVEL, Rev. Ent. franc. 1905, n. spp.
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- Caloderma pollens*, p. 184, *peregrina*, *conjux*, *discolor*, p. 185, *mollis*, *exilis*, *brevipennis*, *quadripennis*, p. 186, N. America, CASEY, Tr. Ac. St. Louis xv, n. spp.
- Conurus pulchricolor*, p. 183, *gracilicornis*, *connexus*, p. 184, Madagascar, FAUVEL, Rev. Ent. franc. 1905, n. spp.
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- Cryptobium alluaudi*, Madagascar, FAUVEL, p. 168, Rev. Ent. franc. 1905, n. spp.
- Cylindropsis africana*, Algeria, PEYERIMHOFF, p. 186, Bull. Soc. ent. France 1905, n. spp.

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- Delopsis microphthalma*, Java, BERNHAUER, p. 12, Deutsche ent. Zeitschr. 1905, n. sp.
- Deratopeus* n. g. near *Tetartopeus*, p. 112, *parvipennis* n. sp., Massachusetts, p. 113, CASEY, Tr. Ac. St. Louis xv.
- Dibelonetes alluaudi*, Madagascar, FAUVEL, p. 152, Rev. Ent. franc. 1905, n. sp.
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- Erchomus ampliatus*, Gaboon, FAUVEL, p. 198, Rev. Ent. franc. 1905; *E. retipennis*, p. 182, *madecassa*, p. 183, Madagascar, FAUVEL, t. c.; *E. planus*, Tonkin, FAUVEL, p. 142, t. c. : n. spp.
- Eucryptina* n. g. type *Cryptobium opacum* Sharp, CASEY, p. 28, Tr. Ac. St. Louis xv.
- Eulathrobium* n. g. for *L. grande*, Lec., CASEY, p. 114, t. c.
- Eustenia* n. g. near *Falugria aspera*, Java, p. 145, *opacicollis*, Burma, p. 146, n. spp., FAUVEL, Rev. Ent. franc. 1905.
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- Gauropterus bucharicus*, Buchara, BERNHAUER, p. 585, Verh. Ges. Wien 1905, n. sp.
- Geostiba peyerimhoffi*, Algeria, FAUVEL, p. 193, Rev. Ent. franc. 1905, n. spp.
- Gnypeta lucens*, California, BERNHAUER, p. 254, Deutsche ent. Zeitschr. 1905, n. sp.
- Hemimedon* n. g. *rufipes*, p. 160, *angustum*, p. 161, n. spp., N. America, CASEY, Tr. Ac. St. Louis xv.
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- Heterolinus distinctus*, Chanchamayo, BERNHAUER, p. 17, Deutsche ent. Zeitschr. 1905, n. sp.
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- H. brevipennis*, Brazil, BERNHAUER, p. 15, Deutsche ent. Zeitschr. 1905, n. sp.
- Homalium vaulogeri*, Tunis, FAUVEL, p. 192, Rev. Ent. franc. 1905, n. sp.
- Homalota nigrescens*, Sumatra, FAUVEL, p. 147, t. c. n. sp.
- Homoeusa acuminata*, habits, WASMANN, pp. 418–420, Zeitschr. Insbiol. i.
- Lamprinus* (*Lamprinodes*), habits, WASMANN, pp. 420–424, t. c.
- Lathriameum*, revision of palaeartic, cf. *Prionothorax*, LUZE, pp. 53–68, Verh. Ges. Wien 1905.
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- Parosus* *skalitzkyi*, Antilles, BERNHAUER, p. 12, Deutsche ent. Zeitschr. 1905, n. sp.
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- Phleconus chlorizans*, p. 10, *sumatrensis*, p. 11, Sumatra, BERNHAUER, Deutsche ent. Zeitschr. 1905, n. spp.
- Phlaeopora obscura*, Tien-schan, BERNHAUER, p. 590, Verh. Ges. Wien 1905, n. sp.
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- Phytosus obockianus*, Perim, FAUVEL, p. 146, Rev. Ent. franc. 1905, n. sp.
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- Platystethus spinosus* = (*flavipennis* Luze), BERNHAUER, p. 595, Verh. Ges. Wien 1905.
- Plociopterus miriventris*, Chancamayo, BERNHAUER, p. 18, Deutsche ent. Zeitschr. 1905, n. sp.
- Polymedon* n. g. for litt. *tabacinum* Cas., CASEY, p. 156, Tr. Ac. St. Louis xv.
- Prionothorax* subg. n. of *Lathrimænum* for *L. reflexum* Reitter, LUZE, pp. 56, 68, Verh. Ges. Wien 1905.
- Proteinus*, table of European, REITTER, pp. 226–228, Wien. ent. Zeit. xxiv.
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- Stichoglossa græca*, Greece, BERNHAUER, p. 593, Verh. Ges. Wien 1905, n. sp.
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- Tanygnathus crassicornis*, Madagascar, FAUVEL, p. 182, Rev. Ent. franc. 1905, n. sp.
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PSELAPHIDÆ.

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Ceratoderus andrewesi, Nilgiri hills, DESNEUX, p. 194, Ann. Soc. ent. Belgique 1905, n. sp.

Euplatyrhopalus n. g. for part of *Platyrhopalus*, DESNEUX, p. 18, Gen. ins. fasc. xxxv.

Platyrhopalopsis n. g. for *P. mellyi* and *picteti*, DESNEUX, p. 20, t. c.

PLATYPHYLLIDÆ.

Platypyllus castoris, food, etc., BUSIGNY, p. 108, Bull. Soc. ent. France 1905 ; *P. castoris*, habits, food, MINGAUD, pp. 161, 162, Feuill Natural. xxxv.

SCYDMÆNIDÆ.

[Cf. HOLDHAUS & WAGNER (754), REITTER (1247, 1254), SCHAEFFER (1323).]

Cephennium (Cephennarium) insulare, *tarsale*, p. 33, *nobile*, p. 35, HOLDHAUS, Riv. Col. ital. iii, n. spp.

- Euconnus (Tetramelus) leonhardi*, Cephalonia, REITTER, p. 242, Wien. ent. Zeit. xxiv, n. sp.
Lophioderus atlanticus, N. Carolina, SCHAEFFER, p. 123, Bull. Brooklyn Inst. i, n. sp.
Scydmænichnus subg. n. of *Stenichus*, *fossifrons*, *ceconii* n. spp., Cyprus, REITTER, p. 99, Wien. ent. Zeit. xxiv.

SILPHIDÆ.

[Cf. ABEILLE (4), CHOBBAUT (311), DEVILLE (409), FLEISCHER (575), MÜLLER (1078), PEYERIMHOFF (1161, 1162), REITTER (1246), SCHOUTEDEN (1345).]

- Abtattaria subtriangula*, Spain, REITTER, p. 90, Wien. ent. Zeit. xxiv, n. sp.
Bathyscia mascarauxi, *jeanneli*, distinct, DEVILLE, p. 231, Bull. Soc. ent. France 1905; *B. pueli*, *B. nemausica*, synonymy and variation, CHOBBAUT, p. 250, Bull. Soc. ent. France 1905; *B. aubei*, distribution, CHOBBAUT, p. 293, variation, distribution, pp. 297–303, subsp. n. *nicaënsis*, p. 300, PEYERIMHOFF, Bull. Soc. ent. France 1905; *B. chardoni* = (*pueli* Chob.) *linderi* = (*nemausica* Chob.), ABEILLE, p. 209, Bull. Soc. ent. France 1905.
B. mascarauxi, Basses Pyrénées, DEVILLE, p. 160, Bull. Soc. ent. France 1905; *B. bucheti*, Nice, ABEILLE, p. 208, Bull. Soc. ent. France 1905: n. spp.
Catops rescissicollis, Algeria, PEYERIMHOFF, p. 230, Bull. Soc. ent. France 1905, n. sp.
Choleva blackburni n. n. for *antipodum* Bl., PORTEVIN, p. 49, Bull. Soc. ent. France 1905.
Dissochaetus Portevin and its two species were previously (1885) described by Reitter; REITTER, p. 199, Wien. ent. Zeit. xxiv.
Eusilpha: the synonymy, PORTEVIN, p. 51, Bull. Soc. ent. France 1905.
Hyponecrodes; characters of species, synonymy, PORTEVIN, pp. 49, 50, t. c.; *H.*, tabulation, with *Katanecrodes* subg. n. for *biguttatus apicalis* and *anticola*, SCHOUTEDEN, pp. 195–199, Ann. Soc. ent. Belgique 1905.
Katanecrodes subg. n. cf. *Hyponecrodes*.
Leptoderus hohenwarti reticulatus subsp. n., MÜLLER, p. 32, Wien. ent. Zeit. xxiv.
Liodes rotundata Er. is var. of *pallens*, *L. algirica* = (*heydeni* and *bipunctata* Rag.) p. 314, *distinguenda* Fairm. has *montana* Halbh. as ab., p. 315, FLEISCHER, Wien. ent. Zeit. xxiv.
Liodes cinnamomea, *humeralis*, *grandis*, *anglica*, *oblonga*, *simplex*, all one species, FLEISCHER, pp. 269–272, t. c.
Necrophorus basalis Fald., PORTEVIN, p. 51, Bull. Soc. ent. France 1905.
Oryctes schmidtii subdentatus subsp. n., MÜLLER, p. 32, Wien. ent. Zeit. xxiv.
Pteromerula subg. n. of *Liodes* for *pallens* Sturm., FLEISCHER, p. 314, Wien. ent. Zeit. xxiv.
Silpha fairmairei n. n. for *bituberosa* Fairm., PORTEVIN, p. 50, Bull. Soc. ent. France 1905.
Thanatophilus tuberculatus, *rugosus*, distinguished, PORTEVIN, p. 50, t. c.

SCAPHIDIIDÆ.

- Scaphisoma agaricinum* var. n. *punctipenne*, PETZ, p. 100, Wien. ent. Zeit. xxiv; *S. agaricinum robustior* var. n., PIC, p. 169, Echange xxi.
S. flavonotatum, Algeria, PIC, p. 129, t. c. n. sp.

HISTERIDÆ.

[Cf. FIORI (563), LEWIS (951–954), VIEHMEYER (1548), WÄSMANN (1588).]
Catalogue of the family, 2306 species, LEWIS (951).

- Abraeus fakir*, India, LEWIS, p. 349, Ann. Nat. Hist. (7) xvi, n. sp.
Chalcurgus brevipennis, pl. x, f. 8, LEWIS, t. c.
Coryphæus violaceus, Borneo, LEWIS, p. 347, t. c. n. sp.
Cyllostoma n. g. type *Platysoma richteri*, LEWIS, p. 302, op. cit. xv.
C. epilissum, Madagascar, LEWIS, p. 344, op. cit. xvi, n. sp.
Eblisia tenuipes, Yunnan, LEWIS, p. 345, t. c. n. sp.
Heterius ferrugineus, habits, VIEHMEYER, Zeitschr. Insbiol. i, p. 242; WÄSMANN, t. c. pp. 330–332.
Hister aino, pl. x, f. 3, *latistrius*, f. 4, LEWIS, Ann. Nat. Hist. (7) xvi.
H. lagreatus, Cameroons, LEWIS, p. 303, op. cit. xv; *H. dauphini*, Madagascar, LEWIS, p. 346, op. cit. xvi; *H. impiger*, Yunnan, LEWIS, p. 609, t. c. : n. spp.
Hololetta feae, pl. x, f. 1, LEWIS, t. c.
H. trulla, Centr. Africa, LEWIS, p. 302, op. cit. xv, n. sp.
Lioderma intersectum, pl. x, f. 2, LEWIS, op. cit. xvi.
L. acutipectum, W. Africa, LEWIS, p. 302, op. cit. xv, n. sp.
Lissosternus n. g. p. 347, *gracilipes*, n. sp., Bahia, p. 348, pl. x, f. 10, LEWIS, op. cit. xvi.
Macrolister striatisternus, Angola, LEWIS, p. 345, t. c. n. sp.
Notodoma saturum, pl. x, f. 9, p. 347, LEWIS, t. c.
Omalodes bullatus, Goyaz, *tuberculatus*, Fr. Guiana, LEWIS, p. 608, t. c. n. spp.
Pachycærus sulcicollis, f. 5, 6, *princeps*, f. 7, pl. x, LEWIS, t. c.
Paratropus chelonitis, Abyssinia, LEWIS, p. 610, t. c. n. sp.
Plæsius hamatus, Tonkin, p. 342, *asperimargo*, Burma, *striatipectus*, New Britain, p. 343, LEWIS, t. c. n. spp.
Platysoma pilulum Gerst. to *Pachycærus*, LEWIS, p. 609, t. c.
P. rimæ, N. W. India, LEWIS, p. 343, t. c.; *P. lævidorsum*, New Guinea, p. 605, *rosselense*, Louisiade Arch., *rufopygum*, p. 606, *pygidiale*, Sumatra, *dorsale*, S. India, p. 607, LEWIS, t. c. : n. spp.
Plegaderus rumänæ, Roumania, LEWIS, p. 610, t. c. n. sp.
Pygocælia strigifrons, Madagascar, LEWIS, p. 605, t. c. n. sp.
Saprinus conjugens = (*Xenonychus rotundatus* FIORI), FIORI, p. 96, Natural. Sicil. xviii.
S. sinaiticus Crotch, 1871, n. sp. but not recorded, SHARP, p. 520, Ann. Nat. Hist. (7) xv; *S. caeruleatus*, Madagascar, LEWIS, p. 611, Ann. Nat. Hist. (7) xvi, n. sp.
Sternocælius lævidorsis major var. n., PIC, p. 129, Echange xxi.
Terestrius distinctus, habits, LEWIS, p. 605, Ann. Nat. Hist. (7) xvi.
Xenonychus rotundatus, Rome, FIORI, p. 4, Natural. Sicil. xviii, n. sp. (but cf. *Saprinus*).

NITIDULIDÆ.

- [Cf. FIORI (569), REITTER (1255), SCHAEFFER (1324).]
Brachypterus rotundicollis, Texas, SCHAEFFER, p. 146, Bull. Brooklyn Inst. i, n. sp.
Cybocephalus festivus var. n. *Clypeoniteus*, FIORI, p. 136, Riv. Col. ital. iii.
C. marginatus, Bologna, FIORI, p. 134, t. c. n. sp.
Pocadius pilistratiatus, habits, FROGGATT, p. 229, Agric. Gaz. N. S. W. xvi.
Rhizophagus brancsiki, Herzegovina, REITTER, p. 312, Wien. ent. Zeit. xxiv, n. sp.

TROGOSITIDÆ.

[Cf. LÉVEILLÉ (947–949).]

- Acrops perraudierei*, Tonkin, LÉVEILLÉ, p. 38, Ann. Soc. ent. France 1905, n. sp.
Airora bituberculata, Brazil, LÉVEILLÉ, p. 45, t. c.; *A. vicina*, Brazil, p. 30, *ferruginea*, Venezuela, p. 31, LÉVEILLÉ, t. c. : n. spp.
Alindria auberti, China, LÉVEILLÉ, p. 92, Bull. Soc. ent. France 1905, and p. 31, Ann. Soc. ent. France 1905, n. sp.
Ancyrona plana, p. 38, *bouchardi*, *soror*, p. 41, LÉVEILLÉ, t. c.
A. feai, *brunneolimbata*, *congolensis*, Africa, LÉVEILLÉ, p. 93, Bull. Soc. ent. France 1905, and pp. 30, 39, Ann. Soc. ent. France 1905; *A. brunnea*, *elongata*, India, LÉVEILLÉ, p. 42, t. c.; *A. javanica*, Java, LÉVEILLÉ, p. 179, Bull. Soc. ent. France 1905 : n. spp.
Corticotomus sharpi, Mexico, LÉVEILLÉ, p. 29, Ann. Soc. ent. France 1905, n. sp.
Gaurambe, table of species, LÉVEILLÉ, p. 43, t. c.
Lophocateres gounellei, Brazil, LÉVEILLÉ, p. 179, Bull. Soc. ent. France 1905, n. sp.
Nemosoma cornutum var. n. *reitteri*, *starcki*, PIC, p. 121, Echange xxi.
Nemozomia pujoli, LÉVEILLÉ, p. 29, Ann. Soc. ent. France 1905.
N. fulva, Brazil, LÉVEILLÉ, p. 44, t. c. n. sp.
Tenebroides jatahyensis, *donckieri*, p. 36, LÉVEILLÉ, t. c.
T. similis, Brazil, p. 34, *nigrocyaneus*, Paraguay, p. 35, *passeti*, Brazil, p. 37, LÉVEILLÉ, t. c.; *T. nemozomiaeformis*, p. 46, *importunus*, p. 47, *scaberrimus*, p. 48, *alutaceus*, p. 49, LÉVEILLÉ, t. c.; *T. boggianii*, Paraguay, LÉVEILLÉ, p. 92, Bull. Soc. ent. France 1905, and p. 34, Ann. Soc. ent. France 1905 : n. spp.
Temnochila biolleyi and *boliviensis*, LÉVEILLÉ, p. 33, Ann. Soc. ent. France 1905.
T. grilloi, Brazil, LÉVEILLÉ, p. 92, Bull. Soc. ent. France 1905, and p. 32, Ann. Soc. ent. France 1905, n. sp.

COLYDIIDÆ.

- Bothridères*; larval habits, HOPKINS, p. 26, P. ent. Soc. Washington vii.
Caetomus monstruosus, Liberia, GROUVELLE, p. 109, Bull. Soc. ent. France 1905, n. sp.
Nepharis goudiei, Australia, LEA, p. 377, pl. xxvii, figg. 3, 9, P. Soc. Victoria, xvii, n. sp.

CUCUJIDÆ and CRYPTOPHAGIDÆ.

- Catogenus rufus*, larval habits, FISKE, p. 90, P. ent. Soc. Washington vii.
Læmophlæus (Silvanophlæus) mirus, Madagascar, GROUVELLE, p. 142, Bull. Soc. ent. France 1905, n. sp.
Atomaria prolixa and *pulchra*, distinguished, GERHARDT, p. 271, Deutsche ent. Zeitschr. 1905.
Cryptophagus pubescens var., MJÖBERG, p. 200, Ent. Tidskr. xxvi.

LATHRIDIIDÆ.

[Cf. BRÈTHES (190), PIC (1174), WASMANN (1588).]

- Coccidophilus* n. g. near *Fallia*, p. 76, *citricola* n. sp., Argentina, p. 77, destroying *Mytilaspis*, BRÈTHES, An. Soc. Argent. lix.

- Coluocera maderæ*, relations with *Prenolepis*, WÄSMANN, pp. 384–390, Zeitschr. Insbiol. i.
Dasyicerus beloni, numidicus, N. Africa, PIC, p. 103, Rev. Ent. franc. 1905, n. spp.
Enicmus minutus and *anthracinus* the supposed sexes, GERHARDT, p. 224, Deutsche ent. Zeitschr. 1905.
Lathridius nodifer ♂ characters, REITTER, p. 199, Wien. ent. Zeit. xxiv.

MYCETOPHAGIDÆ and DERMESTIDÆ.

- Mycetophagus tschitscherini* distinguished from *irroratus*, REITTER, p. 199, Wien. ent. Zeit. xxiv.
Satorystia n. g. near *Litargus, meschniggi*, Hungary, n. sp., REITTER, p. 244, t. c.
Dermestes murinus subvar. n. *nigriceps*, REITTER, p. 244, t. c.
Thaumatoglossa americana, antenna of ♂ and ♀, BARBER, p. 10, cuts, P. ent. Soc. Washington vii.

BYRRHIDÆ.

[Cf. PIC (1184), REITTER (1246), SHARP (670).]

- Chelonarium scabrosum, gravidum, prolixum*, p. 689, *ducale*, p. 690, Centr. America, SHARP, Biol. Centr.-Amer. Col. ii, pt. i, n. spp.
Limnicus (sic) *turkestanicus*, Ferghana, PIC, p. 97, Echange xxi, n. sp.
Trichobryrrhulus championi, La Granja, REITTER, p. 90, Wien. ent. Zeit. xxiv, n. sp.

PARNIDÆ and GEORYSSIDÆ.

- Elmis (Latelmis) longior, surcoufi*, Algeria, PIC, p. 145, Echange xxi, n. spp.
Parnus arizonensis, Arizona, SCHAEFFER, p. 122, Bull. Brooklyn Inst. i, n. sp.
Georyssus purpurascens, Madagascar, FAIRMAIRE, p. 118, Ann. Soc. ent. Belgique 1905, n. sp.

LUCANIDÆ.

[Cf. BOILEAU (126), GRIFFINI (691, 692), MÖLLENKAMP (1057), NONFRIED (1108), PLANET (1208), REED (1233), VAN ROON (1531), WATERHOUSE (1589), ZANG (1662, 1664).]

- Catalogue of the family, 76 genera, 732 spp., VAN ROON, Tijdschr. Ent. xviii, pp. 83–180.
The variation of the male mandibles, general discussion, GRIFFINI (691, 692).

- Agus jansoni*, Queensland, BOILEAU, p. 17, Naturaliste 1905, n. sp.
Ceratognathus flabellatus, Queensland, p. 177, *macrognathus*, Australia, p. 200, BOILEAU, t. c. n. spp.
Chiasognathus, 2 spp., *granti* and *jousselini*, synonymy, REED, Revist. chilena viii, pp. 181–188.
Cyclommatus lunifer, Sumatra, p. 71, ♀, p. 286, *imperator*, New Guinea, p. 285, BOILEAU, Naturaliste 1905, n. spp.
Dorcus vavrai, Persian Kurdistan, NONFRIED, p. 12, Berlin. ent. Zeitschr. i, n. sp.
Eurytrachelus titan var. n. *typhon*, BOILEAU, p. 17, cut, Naturaliste 1905.
E. minax, Sumatra, MÖLLENKAMP, p. 168, Ins. Börse 1905, n. sp.

- Figulus cicatricosus*, Nilgherry hills, BOILEAU, p. 38, Naturaliste 1905 ;
F. horni, Ceylon, ZANG, p. 161, Deutsche ent. Zeitschr. 1905 : n. spp.
Lissoutes cornutus, Australia, BOILEAU, p. 201, Naturaliste 1905, n. sp.
Metopodontus biplagiatus var. n. *nigripes*, BOILEAU, p. 17, t. c.
M. elizabethae, Usagara, WATERHOUSE, p. 375, Ann. Nat. Hist. (7) xv,
 n. sp.
Neolucanus brevis = (*birmaensis* Möll.), ZANG, p. 212, Deutsche ent. Zeitschr.
 1905.
Nigidius; *Hadronigidius* as doubtful subgenus, *N. validus* Pér., ZANG,
 p. 215, Deutsche ent. Zeitschr. 1905.
N. helleri, Sumatra, p. 47, *impressicollis*, Khasia Hills, p. 60, *lewisi*, Liou-
 Kiou Ids., p. 61, BOILEAU, Naturaliste 1905 ; *N. bonneuilli*, *baeri*,
 Philippines, BOILEAU, p. 18, t. c. : n. spp.
Odontolabis imperialis ♀, BOILEAU, p. 147, t. c.
O. lowei var. n. *nubigena*, MÖLLENKAMP, p. 168, Ins. Börse 1905 ; *O. mouhoti*
 = (*elegans* Möll.), characters, ♀, p. 212, *O. lowei* and *aeratus*, male
 variation, p. 214, ZANG, Deutsche ent. Zeitschr. 1905.
O. eremicola, Borneo, MÖLLENKAMP, p. 7, Ins. Börse 1905 ; *O. parryi*,
 Formosa, BOILEAU, p. 48, Naturaliste 1905 : n. spp.
Platycerus, in amber, cf. Palaeont. p. 128.
Prismognathus branczickii, S. W. China, NONFRIED, p. 11, Berlin. ent.
 Zeitschr. 1, n. sp.
Prosopocerus javanensis, ♂ ♀, ZANG, p. 214, Deutsche ent. Zeitschr. 1905.
P. curvidens, Madagascar, NONFRIED, p. 11, Berlin. ent. Zeitschr. 1 ; *P.
 aulicus*, Borneo, MÖLLENKAMP, p. 7, Ins. Börse 1905 ; *P. femoratus*,
 Kina-Balu, p. 147, *laminifer*, Sumatra, p. 286, BOILEAU, Naturaliste
 1905 : n. spp.
Pseudolucanus lesnei, Yunnan ?, PLANET, p. 212, Naturaliste 1905, n. sp.
Sphenognathus nobilis ♀, ZANG, p. 211, Deutsche ent. Zeitschr. 1905.
Syndesus macleayi, Victoria, *punctatus*, New Caledonia (or new Hebrides),
 BOILEAU, p. 61, Naturaliste 1905, n. spp.

PASSALIDÆ.

[Cf. PANGELLA (1135, 1136), ZANG (1654–1656, 1659–1663, 1665–1667).]

ZANG proposes the following new names, *Gnomon* for *Eumelus* Kaup,
Lasioperix for *Flavius* Kuw., *Rhipaspis* for *Heterochilus* Kuw.,
Chilomazus for *Laches* Kaup, *Phalothorax* for *Microthorax* Kuw.,
Scalmus for *Ninus* Kaup, *Protomocælus* for *Pelops* Kaup, *Psilomus* for
Phanocles Kuw., *Macrolobus* for *Phoroneus* Kaup, *Trapezochilus* for
Phraortes Kuw., *Embryulcus* for *Plesthenus* Kaup, *Arrox* for *Sertorius*
 Kaup, *Heliscus* for *Soranus* Kaup, *Alococerus* for *Thryptocerus* Kuw.,
Epipleurothrix for *Trichopleurus* Kuw., *Zosterothrix* for *Vatinus* Kaup;
 Zool. Anz. xxix.

ZANG commences a revision of the work of Kuwert and Kaup, Notes
 Leyden Mus. xxv, pp. 221–232.

Some noteworthy localities, ZANG, p. 112, Deutsche ent. Zeitschr. 1905.

- Aceraius oculidens*, p. 190, *laniger*, p. 191, Borneo, ZANG, Deutsche ent.
 Zeitschr. 1905 ; *A. laevimargo*, Borneo, ZANG, p. 244, t. c. ; *A. palawanus*, Palawan, ZANG, p. 236, Notes Leyden Mus. xxv : n. spp.
Analaches; monograph, ZANG, pp. 24–32, Deutsche ent. Zeitschr. 1904.
A. brachymetopus, Amboyna, ZANG, p. 30, t. c. ; *A. paraplesius*, p. 238,
laticauda, p. 240, *bicarinis*, p. 241, New Guinea, ZANG, t. c. : n. spp.
Auritulus n. g. for *Aulacocyclus patalis* Lew., ZANG, p. 229, Notes Leyden
 Mus. xxv.
Basilianus certus and *neelgherriensis*, ZANG, p. 223, t. c.

- B. binominis*, Lower India, ZANG, p. 243, Deutsche ent. Zeitschr. 1905, n. sp.
Comacupes; synonymy, ZANG, p. 231, Notes Leyden Mus. xxv.
C. cormocerus, Padang, ZANG, p. 233, t. c. n. sp.
Didimus duplicatus and *parastictus* distinguished, ZANG, p. 109, Deutsche ent. Zeitschr. 1905.
D. latipunctus, E. Africa, ZANG, p. 315, t. c. n. sp.
Episphenoides quæstionis Kuw. = (*Mastochilus capitalis* Blackb.), ZANG, p. 223, Notes Leyden Mus. xxv.
Gonatas differens, characters, ZANG, p. 110, Deutsche ent. Zeitschr. 1905.
G. cetioides, hab. ?, ZANG, p. 316, t. c. n. sp.
Heterochilus, characters and position, ZANG, p. 167, t. c.
Kaupiolus trigonophorus, New Guinea, ZANG, p. 316, t. c. n. sp.
Labienius ptox and allies, ZANG, p. 111, t. c.
Laches; Kuwert's 5 spp. = varr. of *comptoni*, ZANG, p. 163, t. c.
Leptauleides and *L. eschscholtzi*, characters, ZANG, p. 106, t. c.
L. rugulosus, p. 100, *fruhstorferi*, p. 102, Tonkin, ZANG, t. c.; *L. barbicauda*, Borneo, p. 164, *andamanarum*, Andaman Ids., p. 166, ZANG, t. c.;
L. palawanicus, Palawan, p. 232, *anipunctatus*, Assam, p. 234, *anaulax*, Sumatra, p. 235, ZANG, t. c.; *L. nietneri*, Ceylon, ZANG, p. 246, t. c. : n. spp.
Leptaularax timoriensis Perch. = (*glabribellis* Kuw.), ZANG, p. 223, Notes Leyden Mus. xxv.
L. tonkinensis, Manson Mts., ZANG, p. 102, Deutsche ent. Zeitschr. 1905 ; *L. anna*, Sumbawa, ZANG, p. 316, t. c. : n. spp.
Nasoproculus n. g. for *Passalus heros* Truqui, ZANG, p. 226, Notes Leyden Mus. xxv.
Neleus camerani, p. 9, *cognettii*, p. 13, Paraguay, PANGELLA, Boll. Mus. Torino xx, No. 508, n. spp.
Ninus hondurensis var. n. *rosmarinæ*, PANGELLA, p. 11, t. c. No. 498.
N. nobilis, Paraguay, PANGELLA, p. 5, t. c. No. 508, n. spp.
Oileus; type is *sagittarius* Sm., ZANG, p. 226, Notes Leyden Mus. xxv.
Ophrygonius quadrifer and *inæqualis*, ZANG, p. 192, Deutsche ent. Zeitschr. 1905.
Passalus; type is to be *Neleus interruptus*, ZANG, p. 224, Notes Leyden Mus. xxv.
Paxilloides and *Paxillosomus* are one, ZANG, p. 222, t. c.
Paxillosomus borellii, Asuncion, PANGELLA, p. 3, Boll. Mus. Torino xx, No. 508; *P. alfari*, Costa Rica, PANGELLA, p. 9, t. c. No. 498 : n. spp.
Pelopoides; type *schraderi* Kuw., ZANG, p. 227, Notes Leyden Mus. xxv.
Platyverres; valid, characters, ZANG, p. 231, t. c.
Proculejoïdes granulipennis, Chiapas, ZANG, p. 229, Deutsche ent. Zeitschr. 1905, n. spp.
Procululus n. g. *Petrejinae*, p. 225, *inca*, n. sp., Peru, p. 226, ZANG, t. c.
Proculus beckeri, Mexico, ZANG, p. 315, t. c. n. sp.
Protomocetus sternbergi, New Guinea, ZANG, p. 236, t. c. n. sp.
Publius spinipes, Bolivia, ZANG, p. 231, t. c. n. sp.
Rhodocanthopus biolleyi, Costa Rica, PANGELLA, p. 3, Boll. Mus. Torino xx, No. 498, n. sp.
Spirius dichotomus, Centr. America, ZANG, p. 227, Deutsche ent. Zeitschr. 1905, n. sp.
Tæniocerus bicanthatus, note, ZANG, p. 105, t. c.
Tiberius, characters and composition, ZANG, p. 163, t. c.
Verres camerani, Costa Rica, PANGELLA, p. 7, Boll. Mus. Torino xx, No. 498; *V. sternbergianus*, Venezuela, ZANG, p. 315, Deutsche ent. Zeitschr. 1905 : n. spp.

SCARABÆIDÆ.

Coprini.

[Cf. ARROW (30), BLACKBURN (123), FAIRMAIRE (534), FALL (540), KOLBE (878), MOLLANDIN (1056), D'ORBIGNY (1124), PUCCIONI (1220), WICKHAM (1630), ZANG (1657).]

The habits and distribution of Coprophagous *Lamellicorns*, KOLBE, Zool. Jahrb. Suppl. viii, pp. 475–594, pls. xvii–xix.

The Scarabs of ancient Egypt, BOUSSAC, pp. 137, 138, cuts, Naturaliste 1905.

Antiochus, a valid genus, characters and components, BLACKBURN, pp. 273–275, Tr. R. Soc. S. Austral. xxix.

Aphodius, in amber, cf. Palaeoent. p. 128; *A. cuniculorum*, description reprinted, MAYER, Bull. Soc. Nîmes xxxii, p. 2.

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L. dilatifrons, p. 272, *nitidicollis*, p. 273, Australia, id. t. c. n. spp.

Onthophagus foliaceus ♀ = (*alterneater* d'Orb.), D'ORBIGNY, p. 532, Ann. Soc. ent. France 1905; *O. denudatus* d'Orb. = (*rufulus* d'Orb.) p. 412, *lavissimus* n. n. for *lavis* d'Orb. 1904, p. 437, *O. nanus* = (*decipiens* Pér.) p. 442, *pixitzi* var. n. *seminiger*, p. 448, *longiceps* var. n. *cupriger*, p. 450, *bellus* n. n. for *gestroi* d'Orb. 1904, p. 454, *parumnotatus* var. n. *conunctus*, p. 454, *sansibaricus* var. n. *eruentus*, p. 455, D'ORBIGNY, t. c.; *O. ovatus*, *grossepunctatus* var. n., REITTER, p. 245, Wien. ent. Zeit. xxiv.

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- p. 474, *rufipennis*, p. 476, *semirubens*, p. 478, *atrofasciatus*, p. 480, *capillatus*, p. 482, *miscellus*, p. 483, *tenuistriatus*, p. 485, *atrovirens*, p. 486, *mixticeps*, p. 487, *asperulus*, p. 488, *clusifrons*, p. 489, *chrysoderus*, p. 490, *gibberosus*, p. 492, *gibber*, p. 493, *trifidisetis*, p. 495, *altilamina*, p. 496, *lobaticollis*, p. 498, *stelliooides*, p. 500, *debilis*, p. 502, *subocellatus*, p. 503, *ocellatus*, p. 504, *furculifer*, p. 505, *O. (Phalops) tuberosus*, p. 508, *O. (Proagoderus) nasidens*, p. 510, *fossidorsis*, p. 512, *longefossus*, p. 514, *atriclaviger*, p. 516, *ignitus*, p. 518, *rassidorsis*, p. 521, *trianguliceps*, p. 523, Africa, d'ORBIGNY, t. c.; *O. biconifer*, p. 527, *inclusus*, p. 528, *comatus*, p. 529, *ventrosus*, p. 530, Africa, d'ORBIGNY, t. c.: n. spp.
- Orphnus bicavatus*, Madagascar, FAIRMAIRE, p. 118, Ann. Soc. ent. Belgique 1905, n. sp.
- Rhyparus peninsularis*, Penang, p. 537, *philippensis*, Philippines, *gracilis*, S. E. isld., p. 538, ARROW, Ann. Nat. Hist. (7) xv, n. spp.
- Stereomera* n. g. near *Rhyparus*, p. 534, *pusilla* n. sp., Singapore, p. 535, ARROW, t. c.
- Sybacodes lutulentus* redescribed, ARROW, p. 539, t. c.

Glaphyrini.

- Anthypna carceli* var. n. *laportei*, LEONI, pp. 116–119, Riv. Col. ital. iii.

Melolonthini.

[Cf. BLACKBURN (123), FAIRMAIRE (534), MATUSOVITZ (1015), PIC (1183, 1193), REITTER (1249), RITSEMA (1271, 1272).]

Classification of Australian *Melolonthides*, BLACKBURN, pp. 276–281, Tr. R. Soc. S. Austral. xxix.

Amphimallina n. g. near *Amphimallus*, p. 203, *jenrichi* n. sp., Ural River, p. 204, REITTER, Wien. ent. Zeit. xxiv.

Anoxia nigricolor, Adana, PIC, p. 177, Echange xxi, n. sp.

Apogonia, supplementary list, RITSEMA, pp. 111–116, Notes Leyden Mus. xxv.

A. waterstradti, p. 103, *speculifera*, p. 105, *lobata*, p. 106, *helleri*, p. 107, Borneo, RITSEMA, t. c. n. spp.

Automolus, characters, BLACKBURN, pp. 331, 332, Tr. R. Soc. S. Austral. xxix.

Chilotrogus n. g. near *Rhizotrogus*, p. 202, *panotrogoides* n. sp., Persia, p. 203, REITTER, Wien. ent. Zeit. xxiv.

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Enthora atomaria, Madagascar, FAIRMAIRE, p. 119, Ann. Soc. ent. Belgique 1905, n. sp.

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- Pectinichelus chinensis*, China, REITTER, p. 202, Wien. ent. Zeit. xxiv, n. sp.
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- Schizonycha obscuricolor*, Timbuctoo, PIC, p. 131, Naturaliste 1905, n. sp.
- Sphyrocattus bicolor*, W. Australia, BLACKBURN, p. 277, Tr. R. Soc. S. Austral. xxix, n. sp.

Rutelini.

[Cf. FAIRMAIRE (534), OHAUS (1114–1119), PIC (1179, 1183, 1187, 1190), SKINNER (1408), WICKHAM (1629).]

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Adoretus drurei, Bagdad, PIC, p. 200, Bull. Soc. ent. France 1905; *A. millingeni*, Arabia, PIC, p. 153, Echange xxi; *A. emarginatus*, Omdurman, OHAUS, p. 6, Jägerskiöld exp. No. 10a; *A. ampliatus*, p. 120, *lutosipennis*, p. 221, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique 1905; *A. fruhstorferi*, Tonkin, OHAUS, p. 98, Deutsche ent. Zeitschr. 1905; *A. philippinus* (Brenske), Philippines, PIC, p. 131, Naturaliste 1905 : n. spp.

Anatista referred to *Spodochlamydes*, p. 272, *A. macrophylla*, Ecuador, n. sp. p. 273, OHAUS, Stettin Ent. Zeit. lxvi.

Anomala mimeloides var. n. *fuscoviridis*, OHAUS, p. 285, t. c.; *A. devota* var. n. *pallidior*, PIC, p. 105, Echange xxi.

A. palæstina, Jerusalem, PIC, p. 129, t. c.; *A. nubeculosa*, p. 84, *viridisericea*, *polychroma*, p. 85, *fuscosignata*, *graminea*, p. 86, *A. (Spilota) nupta*, p. 87, Tonkin, OHAUS, Deutsche ent. Zeitschr. 1905; *A. nigrosellata*, Venezuela, p. 283, *schniederi*, Honduras, p. 284, OHAUS, Stettin Ent. Zeit. lxvi : n. spp.

Anoplognathus analis ♀ = (*Areoda magnifica* Nonfr.), OHAUS, p. 322, t. c.

Antichira hemichlora var. n. *nigripennis*, p. 293, *subænea* subsp. n. *fluminensis*, p. 294, *adamsi* subsp. n. *goyana*, p. 295, OHAUS, t. c.; *A. amazona* Thunb. to *Lagochile*, OHAUS, p. 286, t. c.

A. helleri, Ecuador, OHAUS, p. 295, t. c. n. sp.

Areoda spiritosantensis, S. America, OHAUS, p. 322, t. c. n. sp.

Aulacopalpus clypealis, p. 137, *pygidialis*, p. 139, Chile, OHAUS, t. c. n. spp.

Brachysternus prasinus *araunicus*, p. 156, *viridipes*, p. 157, subsp. n., OHAUS, t. c.

B. hirtus, Chile, id. p. 158, t. c. n. sp.

Byrsopolis mexicana, Mexico, OHAUS, p. 324, t. c. n. sp.

Chalcochlamys n. g. for *Spodochlamys dohrni*, OHAUS, p. 263, t. c.

Chlorota caucana, Colombia, p. 308, *nasuta*, Peru, p. 309, OHAUS, t. c. n. spp.

Cotalpa lanigera var. n. *tau*, WICKHAM, p. 2, J. N. York Ent. Soc. iii.

C. subcribrata, Kansas, id., p. 3, t. c. n. sp.

Dorystethus chlorophanus subsp. n., OHAUS, pp. 295–297, Stettin Ent. Zeit. lxvi.

D. spiritosantensis, *andicola*, p. 298, *columbius*, *maximus*, *castanipennis*,

- p. 299, *auriceps, jordani*, p. 300, *microcephaloïdes*, p. 301, *sulcatus*,
p. 302, S. America, OHAUS, t. c. n. spp.
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Homonyx fuscoæneus, Brazil, p. 313, *oryctoides*, Mexico, p. 314, OHAUS, t. c.
n. spp.
- Hoplognathus helmenreichi*, p. 322, *parvulus*, p. 323, *limbatipennis*, p. 324,
S. America, OHAUS, t. c. n. spp.
- Lagochile boliviiana*, Bolivia, *obscurata*, Venezuela, p. 287, *wiengreeni*,
Brazil, p. 288, OHAUS, t. c. n. spp.
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- M. maculicollis*, Peru, OHAUS, p. 289, t. c. n. sp.
- Macropopillia* n. g. *arrowi* n. sp., India, OHAUS, p. 94, Deutsche ent.
Zeitschr. 1905.
- Mesomerodon* n. g. near *Pelidnota*, p. 319, *spinipenne* n. sp., Peru, p. 320,
OHAUS, Stettin Ent. Zeit. lxvi.
- Mimela globosa*, Assam, *sericea*, Sikkim, p. 88, *javana*, Java, *scheideieri*,
Sikkim, p. 89, OHAUS, Deutsche ent. Zeitschr. 1905, n. spp.
- Odontognathus riedeli*, Brazil, OHAUS, p. 312, Stettin Ent. Zeit. lxvi, n. sp.
- Ometis macraspidioïdes*, Para, OHAUS, p. 289, t. c. n. sp.
- Oogenius chilensis*, Chile, OHAUS, p. 326, t. c. n. sp.
- Parastasia indica* var. = (*fruhstorferi*), OHAUS, p. 97, Deutsche ent.
Zeitschr. 1905.
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Saint Domingo, *ludovici*, p. 317, *sancti jacobi*, *fusciventris*, p. 318,
crassipes, p. 319, S. America, OHAUS, Stettin Ent. Zeit. lxvi, n. spp.
- Phænomerus*, *rufescens*, *cyanicollis*, varr. n., OHAUS, pp. 95, 96, Deutsche
ent. Zeitschr. 1905.
- Phrypnopsis* n. g. near *Adoretus*, *oculata* n. sp., Madagascar, FAIRMAIRE,
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- Phyllopertha carinicollis*, Tonkin, OHAUS, p. 81, Deutsche ent. Zeitschr.
1905, n. sp.
- Platyrutela cibrata* ♂, OHAUS, p. 304, Stettin Ent. Zeit. lxvi.
- Plusiotis beyeri*, Arizona, SKINNER, p. 289, Ent. News Philad. xvi ; *P. flohri*,
Durango, OHAUS, p. 321, Stettin Ent. Zeit. lxvi : n. spp.
- Popillia conopyga*, Luzon, p. 92, *timoriensis*, Timor, p. 93, OHAUS, Deutsche
ent. Zeitschr. 1905, n. spp.
- Pseudochlorota* n. g., *chiriquina*, Chiriqui, p. 306, *peruana*, Peru, p. 307,
n. spp., OHAUS, Stettin Ent. Zeit. lxvi.
- Pseudomalaia flavopilosa*, Philippines, OHAUS, p. 91, Deutsche ent. Zeitschr.
1905, n. sp.
- Rutela lineola* and *histrio*, variation, OHAUS, pp. 311, 312, Stettin Ent. Zeit.
lxvi.
- R. pygidialis*, Panama, *tricolorea*, S. America, OHAUS, p. 34, t. c. n. spp.
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n. sp.
- Spodochlamides* : revision of, OHAUS, pp. 260-276, Stettin Ent. Zeit. lxvi.
- Spodochlamys flavofemorata*, Venezuela, p. 265, *iheringi*, Brazil, p. 266,
popayana, p. 268, *curvibrachialis*, p. 270, Colombia, OHAUS, t. c.
n. spp.
- Strigoderma floridana*, Florida, OHAUS, p. 285, t. c. n. sp.
- Thyridium violaceipes*, *oblongum*, p. 302, *marginicolle*, *caucanum*, p. 303,
S. America, OHAUS, t. c. n. spp.

Dynastini.

[Cf. BRÈTHES (188), FAIRMAIRE (534), FALL (542), KOLBE (879), TITUS (1496).]

Aphonodelus n. g. *Heteronychides coriaceipennis* n. sp., Cameroons, p. 4, KOLBE, Arkiv Zool. ii, No. 18.

Aphonoprotus n. g. *Heteronychides*, p. 2, *pentodontinus* n. sp., Cameroons, p. 3, KOLBE, t. c.

Archophanes n. g. for *Oryctes cratericollis* Fairm., KOLBE, p. 19, t. c.

Cheiroplatys verticalis, New Mexico, FALL, p. 272, Canad. Ent. 1905, n. sp.

Cyclocephala tucumana, p. 330, *andina*, p. 331, Tucumán, BRÈTHES, An. Mus. Buenos Aires (3) iv, n. spp.

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Pentodon; note, with *P. reitteri* n. n., JAKOVLEV, pp. xv–xvii, Annuaire Mus. St. Petersb. lx.

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Pycnoschema camerunum, W. Africa, p. 6, *simplicicolle*, p. 7, *suillum*, p. 8, Angola, KOLBE, t. c.

Tenorrrhynchus rugatus, p. 9, *scutiger*, p. 10, Cameroons, KOLBE, t. c. n. spp.

Trionychus strigipennis, Madagascar, FAIRMAIRE, p. 119, Ann. Soc. ent. Belgique 1905, n. sp.

Cetoniini.

[Cf. BRAEM (170), FAIRMAIRE (534, 537), HELLER (737), JANSON (815), LE COMTE (932, 933), MOSER (1076), WATERHOUSE (1589).]

Cetoniidae of France, tables, LE COMTE, pp. 76–85, Bull. Soc. Nimes xxxii.

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Blesia subrugosa, Bolivia, MOSER, p. 211, Ann. Soc. ent. Belgique 1905, n. sp.

Bricoptis variolosa var. *rufescens*, a distinct species, FAIRMAIRE, p. 123, Ann. Soc. ent. Belgique 1905.

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C. (Potosia) mayeti, Malta (or Benghazi), LE COMTE, p. 274, Bull. Soc. ent. France 1905, n. sp.

Cetonischema speciosa varr. n., NONFRIED, pp. 330–332, Stettin Ent. Zeit. lxvi.

Chelorrhina kroatzi, Cameroons, MOSER, p. 210, Ann. Soc. ent. Belgique 1905, n. sp.

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Clinteria ornatipennis, E. Africa, p. 212, *alboguttata*, Key Ids., p. 213, MOSER, Ann. Soc. ent. Belgique 1905, n. spp.

Dicellachilus n. g. near *Compocephalus*, p. 376, *woodi* n. sp., Usagara, p. 377, WATERHOUSE, Ann. Nat. Hist. (7) xv.

- Euphoria limbalis*, Florida, *holochloris*, Arizona, FALL, p. 273, Canad. Ent. 1905, n. sp.
- Fornasinius wesselsi*, Congo, BRAEM, p. 43, Ann. Soc. ent. Belgique 1905, n. sp.
- Gnorimus guerryi* n. n. for *flavitarsis* Fairm., 1902, MOSER, p. 215, Ann. Soc. ent. Belgique 1905.
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- L. pratti*, p. 12, *lutea*, p. 13, *rubens*, p. 15, *pulchella*, p. 16, *cupriceps*, p. 17, New Guinea, JANSON, t. c.; *L. mycterocephalus*, New Guinea, HELLER, p. 65, Deutsche ent. Zeitschr. 1905 : n. spp.
- Lophogastra* n. n. for *Lophophora* Kr., the species, FAIRMAIRE, p. 123, Ann. Soc. ent. Belgique 1905.
- Malacotonia* n. g. near *Linotarsia*, p. 121, *rufopicta* n. sp., Madagascar, p. 122, and including *Gametis clytus* Westw., and *Linotarsia cincticollis* Fairm., FAIRMAIRE, t. c.
- Morokia* n. g. near *Lomaptera*, *meeki* n. sp., New Guinea, JANSON, p. 11, Ann. Nat. Hist. (7) xvi.
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- Osmoderma brevipennis* ♀, PIC, p. 121, Echange xxi.
- Potosia incerta* var. *n. hypocrita*, RAGUSA, p. 291, Natural. Sicil. xvii.
- Protætia nigra*, Dammer Id., MOSER, p. 213, Ann. Soc. ent. Belgique 1905, n. sp.
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- Trichaulax sericea*, New Guinea, JANSON, p. 17, Ann. Nat. Hist. (7) xvi, n. sp.
- Trichius alboguttatus*, Assam, MOSER, p. 215, Ann. Soc. ent. Belgique 1905, n. sp.
- Valgus hemipterus*, metamorphosis, XAMBEU, p. 164, Naturaliste 1905.

BUPRESTIDÆ.

[Cf. ABEILLE (3), CSIKI (378), FAIRMAIRE (534), FALL (539, 542), FLEUTIAUX (581), KERREMANS (835), OBST (1114), PIC (1184), REITTER (1249), SCHAEFFER (1323, 1324), THÉRY (1488, 1489), WATERHOUSE (1590), WICKHAM (1630).]

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- Actenodes albifrons*, p. 111, *uniformis*, pl. iii, fig. 16, *frater*, fig. 17, p. 112, Madagascar, THÉRY, t. c. n. spp.
- Agæocera gentilis* = (*fenyesi* Kerr.), WATERHOUSE, p. 577, Ann. Nat. Hist. (7) xv.
- Agrilus perrini* n. n. for *divaricatus* Ab., PIC, p. 185, Echange 1905.

- A. divaricatus*, Algeria, p. 207, *bedeli*, La Granja, p. 208, ABEILLE, Bull. Soc. ent. France 1905; *A. auroguttatus*, p. 149, *huachucæ, quercus*, p. 150, Arizona, SCHAEFFER, Bull. Brooklyn Inst. iii; *A. subtropicus*, Texas, SCHAEFFER, p. 131, op. cit. i; *A. snowi*, Arizona, FALL, p. 271, Canad. Ent. 1905; n. spp.
- Anthaxia salicis* var. n. *speciosa*, CSIKI, p. 581, Ann. Mus. Hungar. iii.
- A. nyassica*, Africa, OBST, p. 430, Zool. Jahrb. Syst. xxii; *A. ventricosa*, p. 106, *hydropica*, pl. ii, fig. 12, p. 107, *episcopalis*, fig. 13, *scabra*, fig. 14, *hova*, fig. 15, p. 108, Madagascar, THÉRY, Bupr. Madag. : n. spp.
- Aphanisticus bouvieri*, p. 144, *elegans*, *inornatus*, p. 145, *integrifollis*, *sicardi*, p. 146, *maleficus*, p. 147, Madagascar, THÉRY, t. c. n. spp.
- Chrysobothris edwardsii* ♂, SCHAEFFER, p. 129, Bull. Brooklyn Inst. i.
- C. decorsei*, Madagascar, THÉRY, p. 109, Bupr. Madag.; *C. bimarginicollis*, Arizona, SCHAEFFER, p. 148, Bull. Brooklyn Inst. i; *C. thoracicus*, Lower California, p. 128, *serripes*, Utah, p. 130, SCHAEFFER, t. c. : n. spp.
- Chrysodema ventralis*=(*navicularis* Kerr.), *C. dohrnii*=(*fairmairei* Kerr.) *mnizechii* being distinct, *C. wallacei*=(*sumatrensis* Kerr.), WATERHOUSE, p. 583, Ann. Nat. Hist. (7) xv.
- C. yerburyi*, Ceylon, WATERHOUSE, p. 583, t. c. n. sp.
- Cinyla purpurascens*, Lower California, SCHAEFFER, p. 127, Bull. Brooklyn Inst. i, n. sp.
- Coræbus orientalis*, Bucharest, ABEILLE, p. 207, Bull. Soc. ent. France 1905, n. sp.
- Cylindromorphus albifrons*, Madagascar, pl. v, fig. 28, THÉRY, p. 141, Bupr. Madag. n. sp.
- Dicerco alni*, food-habits, MOLLANDIN, p. 95, Bull. Soc. ent. France 1905.
- Dilopholotus flacourtii*, p. 130, *farinosus*, p. 131, *mocquerysi*, *decorsei*, p. 132, *inconstans*, pl. iv, fig. 22, p. 133, *nivifera*, p. 134, *decoloratus*, fig. 23, p. 135, *fallax*, fig. 24, *inornatus*, fig. 25, p. 136, *abeillei*, fig. 26, p. 137, *tristis*, p. 138, *crassus*, fig. 27, *spurcus*, p. 139, Madagascar, THÉRY, Bupr. Madag. n. spp.
- Discoderes ampliatus*, Madagascar, FAIRMAIRE, p. 124, Ann. Soc. ent. Belgique 1905, n. sp.
- Dystaxia elegans*, San Diego, FALL, p. 71, Ent. News Philad. xvi, n. sp.
- Ectinogonia composi*, Guyaquil, THÉRY, p. 152, Naturaliste 1905, n. sp.
- Entomogaster mocquerysi*, *asperulus*, pl. iv, fig. 20, Madagascar, THÉRY, p. 120, Bupr. Madag. n. spp.
- Galbella insularis*, pl. vii, fig. 48, p. 167, *chrysonota*, fig. 49, p. 168, *pretiosa*, figs. 50, 51, p. 169, *byrrhoïdes*, fig. 52, *limbata*, fig. 53, p. 170, *antiqua*, fig. 54, p. 171, Madagascar, THÉRY, t. c. n. spp.
- Gyascutus juniperinus*, Utah, WICKHAM, p. 167, Canad. Ent. 1905, n. sp.
- Halecia soror*, Ecuador, p. 577, *trilineata*, Mexico, p. 578, *elongata*, *buckleyi*, Ecuador, p. 579, *sexcostata*, Bogota, p. 580, *rugosa*, p. 581, *viridisplendens*, Brazil, p. 582, WATERHOUSE, Ann. Nat. Hist. (7) xv, n. spp.
- Hypoprasis magnifica*, *harpago*, distinguished, WATERHOUSE, p. 577, t. c.
- Iridotenia lineata*=(*javana* Kerr.), WATERHOUSE, p. 583, t. c.
- Julodis mathiesseni*, Persia, REITTER, p. 204, Wien. ent. Zeit. xxiv; *J. bouvieri*, Persia, p. 227, *damarina*, Namaqualand, p. 286, *karrooana*, S. Africa, p. 302, KERREMANS, Mon. Buprest. i : n. spp.
- Mastogenius robustus*, Arizona, SCHAEFFER, p. 148, Bull. Brooklyn Inst. i, n. sp.
- Melanophila hungarica*, Hungary, CSIKI, p. 579, Ann. Mus. Hungar. iii, n. sp.
- Melibœus insipidus*, Madagascar, THÉRY, pl. iv, fig. 21, p. 123, Bupr. Madag. n. sp.

- Neoptosima* n. g. p. 35, including *Ptos. sericea* and *fairmairei*, and with *kerremansi*, p. 36, *spinosa*, *deplanata*, p. 37, n. spp., Madagascar, THÉRY, t. c.
- Paracastalia ornatipennis*, p. 412, *minima*, p. 418, E. Africa, KERREMAN, Mon. Buprest. i, n. spp.
- Polycesta elata* a distinct species, FALL, p. 73, Ent. News Philad. xvi.
- Pseudacherasia* n. g. p. 382, *theryi* n. sp., Goyaz, p. 384, pl. vii, fig. 1, KERREMAN, Mon. Buprest. i.
- Pseudocoræbus* n. g. near *Chloricalla*, *mocquerysi*, pl. iii, fig. 18, n. sp., Madagascar, THÉRY, p. 121, Bupr. Madag.
- Psiloptera aspasia* Gerst. and *rubrocincta* Kerr. are the same, but *quadriareolata* Fährs. and *bioculata* Ol. are distinct, *P. nigroænea* Kerr. = (soror) Obst and *subcatenulata* Thoms. = (ænea) Obst, OBST, pp. 426, 427, Zool. Jahrb. Syst. xxii.
- P. sexnotata*, E. Africa, OBST, p. 423, t. c.; *P. albovittata*, E. Africa, OBST, p. 429, t. c.; *P. (Lampetis) decorsei*, pl. i, fig. 4, p. 42, *vabreasi*, *lemur*, p. 43, *cyclops*, p. 44, *pater*, p. 45, *P. (Alampetis) sordida*, p. 48, *donckieri*, pl. i, fig. 9, p. 49, *P. (Apatea) abeilli*, p. 54, *P. rubibipes*, *fallax*, *longicollis*, p. 57, *alcyon*, pl. i, fig. 6, p. 59, *pandus*, p. 60, *moralesi*, pl. ii, fig. 7, p. 62, *grandidieri*, p. 65, *mocquerysi*, p. 68, *wautersi*, p. 75, *adspersipennis*, p. 76, *rustica*, *republicana*, pl. ii, fig. 9, p. 78, *pulverulenta*, p. 80, *nivifera*, p. 84, *errata*, *angulosa*, p. 99, *heydeni*, pl. ii, fig. 10, p. 100, *diecki*, fig. 11, p. 101, Madagascar, THÉRY, Bupr. Madag.; *P. cupropunctata*, Texas, SCHAEFFER, p. 147, Bull. Brooklyn Inst. i : n. spp.
- Ptosima* 11-maculata var. n. *multimaculata*, PIC, p. 177, Echange xxi.
- Sphenoptera aliena*, E. Africa, OBST, p. 424, Zool. Jahrb. Syst. xxii, n. sp.
- Stenianthe carbonaria*, Madagascar, THÉRY, pl. i, fig. 2, p. 35, Bupr. Madag. n. sp.
- Sternocera frutetorum*, Nyassa, p. 142, KERREMAN, Mon. Buprest. i, n. sp.
- Sternotomis pupieri*, Comoro Ids., FLEUTIAUX, p. 7, Bull. Soc. ent. France 1905, n. sp.
- Trachys hova*, pl. v, fig. 20, *mocquerysi*, fig. 30, p. 150, *vivida*, fig. 31, p. 151, *decorsei*, fig. 32, *sicardi*, p. 153, *cambouei*, fig. 33, *spectrum*, fig. 34, p. 154, *niobe*, fig. 35, *nyctelia*, fig. 36, p. 155, *immota*, fig. 37, p. 156, *corculum*, fig. 38, *dedita*, fig. 39, p. 157, *dira*, pl. vi, fig. 40, *grandiceps*, fig. 41, p. 158, *kervillei*, fig. 42, *fischeri*, fig. 43, p. 159, *compacta*, fig. 44, *creon*, fig. 45, p. 160, *deliae*, pl. vii, fig. 46, p. 161, *corinna*, fig. 47, p. 162, Madagascar, THÉRY, Bupr. Madag. n. spp.

EUCNEMIDÆ and THROSCIDÆ.

- Phyllocerus diversicornis*, Taurus, PIC, p. 181, Echange xxi, n. sp.
- Throscus bachofeni*, Transcaspian, REITTER, p. 91, Wien. ent. Zeit. xxiv, n. sp.

ELATERIDÆ.

[Cf. DU BUYSSEN (226–228), FALL (542), FIORI (569), FLEUTIAUX (580), PIC (1187, 1191), REITTER (1245), SCHWARZ (1169, 1170).]

Elateridae, table of genera of palaearctic, of the families of *Sternoxia* and of the species of *Athouina*, REITTER, Verh. Ver. Brunn. xlivi. Heft lvi of Bestimmungs-Tabelle.

Adelocera auricollis, Madagascar, SCHWARZ, p. 273, Deutsche ent. Zeitschr. 1905; *A. subaurata*, Ceylon, SCHWARZ, p. 257, t. c. : n. spp.

Æolus and *Heteroderes*, relations, FLEUTIAUX, p. 322, Ann. Soc. ent. France 1905.

- Agonischius subænescens*, Assam, SCHWARZ, p. 263, Deutsche ent. Zeitschr. 1905, n. sp.
- Agriotes rubidicinctus*, Mantchuria, DU BUYSSEN, p. 16, Bull. Mus. Paris 1905, n. sp.
- Alaotrypus duchoni*, Assam, SCHWARZ, p. 257, Deutsche ent. Zeitschr. 1905, n. sp.
- Alaus rotundimaculatus*, p. 284, *brevipennis*, *nigromaculatus*, p. 285, *tigrinus*, p. 286, W. Africa, SCHWARZ, t. c. n. spp.
- Alcimathous subg. n.* of *Athous* for *A. sacheri* Kies., REITTER, p. 42, Verh. Ver. Brunn. xliii.
- Arraphes diptychus* Cand. var. = (*confusus* Fleut.), FLEUTIAUX, p. 327, Ann. Soc. ent. France 1905.
- Athous*; treated, BUYSSON, pp. 337–368, Faune gallo-rhénane; also REITTER, Verh. Ver. Brunn. xliii.
- A. olcesei*, Tangier, BUYSSON, p. 211, Bull. Soc. ent. France 1905; *A. corvinus*, Syria, p. 38, *nullus*, Caucasus, *plicatulus*, E. Siberia, p. 40, *A. (Grypocarus) densatus*, S.-E. Europe, p. 43, *vittatoides*, Albania, p. 46, *A. (Anathrotus) villigeroides*, Monte Rosa, p. 55, *A. (Haplathous subg. n. p. 61) corcyreus*, p. 62, *kerkyranus*, p. 63, Corfu, *milleri*, Istria, p. 65, *angulifrons*, Eur. mont. p. 66, *stellatus*, Carnian Alps, p. 67, *dilaticornis*, Crimea, p. 68, *carpathicus*, Rodna mts. p. 71, *sosybius*, Daghestan, p. 73, *turcicus*, Turkey, p. 75, *A. (Orthathous subg. n. p. 80) leonhardi*, Herzegovina, p. 81, *harmodius*, *holtzi*, Greece, p. 85, *apfelbecki*, Servia, p. 86, *krugeri*, N. Spain, p. 88, *singularis*, Dalmatia, p. 89, *caviformis*, p. 90, *meuseli*, Bosnia, *cavulus*, Nikolajew, p. 91, *lomnickii*, Galicia, p. 92, *A. (Grypathous subg. n. p. 92) gerezianus*, Spain, p. 99, *serbiclus*, Bosnia, *gobanzi*, Dalmatia, p. 105, *picipennis*, Banat, *carpathophilus*, Transsylvania, p. 106, *cervicolor*, Asturias, p. 107, *goriciensis* Görz, p. 110, *plagipennis*, Hungary, p. 112, REITTER, Verh. Ver. Brunn. xliii : n. spp.
- Calambus bipustulatus* var. n. *epipleuralis*, DU BUYSSEN, p. 17, Bull. Mus. Paris 1905.
- Cardiophorus latelimbatus*, Marocco, PIC, p. 105, Echange xxi; *C. impexus*, Biskra, p. 209, *sbeitensis*, Tunis, p. 210, DU BUYSSEN, Bull. Soc. ent. France 1905; *C. differens*, Madagascar, p. 289, *obliquemaculatus*, Natal, p. 290, SCHWARZ, Deutsche ent. Zeitschr. 1905; *C. arizonensis*, Arizona, FALL, p. 270, Canad. Ent. 1905 : n. spp.
- Cardiotarsus nitidissimus*, Madagascar, SCHWARZ, p. 290, Deutsche ent. Zeitschr. 1905, n. sp.
- Compsolacon n. g.* for *Archontas crenicollis*, REITTER, p. 6, Verh. Ver. Brunn. xliii.
- Corymbites africanus*, Transvaal, SCHWARZ, p. 291, Deutsche ent. Zeitschr. 1905, n. sp.
- Diacanthous subg. n.* of *Harminius* for *Athous undulatus*, REITTER, p. 25, Verh. Ver. Brunn. xliii.
- Dicronychus crassipes*, S. Thomé, SCHWARZ, p. 282, Deutsche ent. Zeitschr. 1905, n. sp.
- Dorignus ceylanicus*, Kandy, FLEUTIAUX, p. 321, Ann. Soc. ent. France 1905, n. sp.
- Drasterius bimaculatus*, *figuratus*, *egyptiacus*, DU BUYSSEN, p. 18, Bull. Mus. Paris 1905; *D. bimaculatus wachsmanni* subsp. n., REITTER, p. 91, Wien. ent. Zeit. xxiv.
- Elasmosomus apicalis*, p. 273, *pulchellus*, p. 274, *pulcher*, p. 275, Africa, SCHWARZ, Deutsche ent. Zeitschr. 1905, n. spp.
- Elathouina n. g.* for *A. amicus* Perr., REITTER, p. 19, Verh. Ver. Brunn. xliii.
- Elatrigus n. g.* for *Tetrigus cyprius* Baudi, REITTER, p. 10, t. c.
- Euplatheous subg. n.* of *Athous* type *A. vanus* Duf., REITTER, p. 76, t. c.

- Grypathous* subg. n. cf. *Athous*.
Haplathous subg. n. cf. *Athous*.
Harminius (*Megathous* subg. n. p. 27) for *Athous menetriesi*, *major*, Styria, p. 28, *jakobsoni*, Mongolia, n. spp., p. 29, REITTER, Verh. Ver. Brunn xliii.
Hemicleus fasciculatus, p. 276, *longicollis*, p. 277, Africa, SCHWARZ, Deutsche ent. Zeitschr. 1905, n. spp.
Hemiops assamensis, p. 264, *duchoni*, p. 265, Assam, *angularis*, Sumatra, p. 266, SCHWARZ, t. c. n. spp.
Hemirraphes bivittatus, S. India, FLEUTIAUX, p. 326, Ann. Soc. ent. France 1905, n. sp.
Heterathous subg. n. of *Athous* for *A. sanguinicollis* Friv., REITTER, p. 32, Verh. Ver. Brunn xliii.
Homotechnes brunneus, S. India, FLEUTIAUX, p. 325, Ann. Soc. ent. France 1905, n. sp.
Hypnoidus incommodus, p. 325, *monadicoides*, *candzei*, p. 326, India, FLEUTIAUX, t. c. n. spp.
Lacon nebulosus, *bigranosus*, Madagascar, SCHWARZ, p. 278, Deutsche ent. Zeitschr. 1905; *L. niger*, Darjiling, p. 258, *principatus*, Ceylon, p. 259, SCHWARZ, t. c. n. spp.
Leptoschema = (*Elathous* Reitt.), REITTER, p. 20, Verh. Ver. Brunn xliii.
Limoniscus n. g. for part of *Limonius*, *violaceus* etc., REITTER, p. 14, t. c. *Limonius* (*Propheletes* subg. n.) *grandii*, Bologna, FIORI, p. 131, Riv. Col. ital. iii, n. sp.
Lobotarsus ambiguus, p. 279, *maculatus*, p. 280, Madagascar, *miser*, Gaboon, p. 281, SCHWARZ, Deutsche ent. Zeitschr. 1905, n. spp.
Ludius cinctus var. n. *semitestacea*, PIC, p. 181, Bull. Soc. ent. France 1905.
L. (Calosirus) incostatus, Syria, p. 169, *L. (Selatosomus) taygetanus*, Morea, p. 170, PIC, t. c.; *L. maindroni*, S. India, FLEUTIAUX, p. 329, Ann. Soc. ent. France 1905 : n. spp.
Megathous subg. n. cf. *Harminius*.
Melanathous n. g. *sequensi* n. sp., Taygetos, REITTER, p. 25, Verh. Ver. Brunn xliii.
Melanoxanthus motschulskyi, N. India, p. 323, *pomachilioides*, Nilgiris, p. 324, FLEUTIAUX, Ann. Soc. ent. France 1905, n. spp.
Negastrius quadriguttatus, larva and pupa, pl. figg. 3, 4, p. 34, MJÖBERG, Arkiv Zool. ii, No. 17.
Nomopleus fleutiauxi, S. Africa, *macer*, E. Africa, p. 20, SCHWARZ, p. 292, Deutsche ent. Zeitschr. 1905, n. spp.
Odontonychus niger, Cameroons, SCHWARZ, p. 281, t. c. n. sp.
Orthathous subg. n. cf. *Athous*.
Paralacon n. g. for *Lacon cinnamomeus* Cand. ?, REITTER, p. 6, Verh. Ver. Brunn xliii.
Penia lateralis, p. 261, *marmorata*, *bimaculata*, p. 262, *niger*, p. 263, N. India, SCHWARZ, Deutsche ent. Zeitschr. 1905, n. spp.
Phedomenus pallipes, Madagascar, p. 287, *bipunctatus*, W. Africa, p. 288, SCHWARZ, t. c. n. spp.
Pleurathous subg. n. of *Athous* type *A. godarti*, REITTER, p. 48, Verh. Ver. Brunn xliii.
Procrærus n. g. for *Megapenthes tibialis* etc., REITTER, p. 11, t. c.
Propheletes subg. n. cf. *Limonius*.
Psephus assamensis, Kohima, SCHWARZ, p. 260, Deutsche ent. Zeitschr. 1905, n. sp.
Silesis vauologeri, Algeria, BUYSSON, p. 110, Bull. Soc. ent. France 1905, n. sp.
Spilus africanus, W. Africa, SCHWARZ, p. 283, Deutsche ent. Zeitschr. 1905, n. sp.
Tetralobus duchoni, Assam, SCHWARZ, p. 260, t. c. n. sp.

Tropihypnus n. g. for *Paracardiophorus bimargo* Reitt., REITTER, p. 9,
Verh. Ver. Brunn. xliii.

CEBRIONIDÆ.

Cebrio xanthoderes var. n. *vaulogeri*, p. 153, *C. guyoni* var. n. *obscurior*,
p. 154, PIC, Echange xxi.
C. subattenuatus, pelissieri, Algeria, PIC, p. 154, t. c. n. spp.

MALACODERMIDÆ.

[(Cf. BARBER (75), BOURGEOIS (150–157), CHAIGNON (296), FAIRMAIRE (534), FIORI (568, 570), GORHAM (676), GOUNELLE (677), KNAB (871), OLIVIER (1121–1123), PIC (1180, 1182, 1186, 1187, 1189–1193).]

Isochromism of *Lycidae*, and of insects resembling them, GOUNELLE, Bull. Soc. ent France 1905, pp. 132–134.

Absidia obscuricolor, Japan, PIC, p. 121, Echange xxi, n. sp.

Acanthocnemus brevicornis, note, PIC, p. 23, Bull. Soc. ent. France 1905.

Anthocomus coriaceus, S. Africa, GORHAM, p. 275, P. Zool. Soc. London 1905, ii, n. sp.

Astylus argentinus, S. America, PIC, p. 92, Naturaliste 1905, n. sp.

Attalus nourricheli, var. n. *marginatus*, LEONI, pp. 106–109, Riv. Col. ital. iii.

A. fruhstorferi, Darjeeling, PIC, p. 92, Naturaliste 1905; *A. obscuripennis*, Algeria, PIC, p. 154, Echange xxi : n. spp.

Axinotarsus robustus, Tangier, PIC, p. 106, t. c. n. sp.

Calopteron variegatum var. n. *flavofasciatum*, p. 11, *torquatum albofasciatum* var. n. p. 113, *reticulatum inhumerale* var. n. p. 115, *melanoxanthum geayanum* var. n. p. 117, *limbatum signatum* var. n. p. 119, BOURGEOIS, Ann. Soc. ent. France 1905.

Cantharis bicolor var. n. *discotestacea*, *C. lateralis* var. n. *nigronotata*, PIC, p. 186, Echange 1905; *C. parnassicus* var. n. *latemaculata*, PIC, p. 161, t. c.; *C. fusca* var. n. *marsicana fracassii*, LEONI, p. 130, Riv. Col. ital. iii.

C. guilleti, Japan, PIC, p. 113, Echange xxi, n. sp.

Cladophorus bifrensis, p. 191, *bolivari*, p. 192, Spanish Guinea, BOURGEOIS, Mem. Soc. Espan. i; *C. satrapa*, Kurseong, BOURGEOIS, p. 47, Ann. Soc. ent Belgique 1905 : n. spp.

Curtos motschulskyi, Java, OLIVIER, p. 208, Ann. Soc. ent. Belgique 1905, n. sp.

Cyrtopteron n. g. for part of *Calopteron*, BOURGEOIS, p. 122, Ann. Soc. ent. France 1905.

Cyrtosus baborensis, Algeria, PIC, p. 121, Echange xxi, n. sp.

Dalthomes subg. n. cf. *Malthodes*.

Danacaca moreana, Greece, PIC, p. 161, Echange xxi, n. spp.

Dictyoptera taygetana, Greece, PIC, p. 185, t. c.; *D. braeti*, Kurseong, BOURGEOIS, p. 47, Ann. Soc. ent. Belgique 1905 : n. spp.

Dolichomorphus subg. n. cf. *Psilothrix*.

Drilus creticus, Crete, PIC, p. 170, Echange xxi, n. sp.

Ebaeus carinatipennis, Sikkim, PIC, p. 92, Naturaliste 1905, n. sp.

Hedonistes n. g. near *Hedybius*, p. 278, *latus*, n. sp., Cape Colony, p. 279, GORHAM, P. Zool. Soc. London 1905, ii.

Hedybius sculpticeps, p. 275, *quadricornis*, p. 276, S. Africa, GORHAM, t. c. n. spp.

Idiopteron n. g. for part of *Calopteron*, p. 120, *bivittatum* var. n. *morosum*, p. 121, BOURGEOIS, Ann. Soc. ent. France 1905.

- Lanius diabolicus*, Sumatra, *rouyeri*, *carinaticeps*, Java, PIC, p. 104, Echange xxi; *L. variolosus*, *miles*, Ceylon, BOURGEOIS, p. 131, Ann. Soc. ent. France 1905 : n. spp.
- Luciola italica*, nature of light, PASSERINI, pp. 181-183, Bull. Soc. ent. Ital. xxxvi.
- L. horni*, *antennalis*, Ceylon, BOURGEOIS, p. 128, Ann. Soc. ent. France 1905 ; *L. gemina*, White Nile, OLIVIER, p. 9, Jägerskiöld exp. No. 10a ; *L. krugeri*, *mendax*, Africa, *nitescens*, Borneo, p. 206, *sordida*, Java, *calceata*, Pondicherry, p. 207, OLIVIER, Ann. Soc. ent. Belgique 1905 : n. spp.
- Lycostomus nigricollis*, Kurseong, BOURGEOIS, p. 46, Ann. Soc. ent. Belgique 1905, n. sp.
- Lycus (Lycostomus) vaucherii*, Atlas, BOURGEOIS, p. 291, Bull. Soc. ent. France 1905, n. sp.
- Macrolampis*; redefined, p. 311, *M. omissus*, *elapsus*, p. 315, *roberti*, *frater*, *distinguendus*, p. 316, *transversenotatus*, *agonus*, p. 317, *meditabundus*, *cylindrus*, p. 318, n. spp., S. America, OLIVIER, Ann. Soc. ent. France 1905.
- Malthinus bilineatus* var. n. *neapolitana*, PIC, p. 186, Echange 1906.
- M. nitidithorax*, p. 145, *terrestris*, p. 146, Algeria, PIC, t. c. n. spp.
- Malthodes maurus*; *Podistrina continua* is wingless ♀, BOURGEOIS, p. 238, Bull. Soc. ent. France 1905.
- M. gavoyi*, Aude, BOURGEOIS, p. 21, t. c. ; *M. grandicornis*, Algeria, PIC, p. 106, Echange xxi ; *M. cortadesi*, *inapicalis*, Algeria, PIC, p. 146, t. c. ; *M. (Dalthomes) subg. n. p. 248) bertolini*, Italy, p. 248, FIORI, Riv. Col. Ital. iii : n. spp.
- Malthodinus* subg. n. of *Maltharcus*, FIORI, p. 236, t. c.
- Mesomalthodes* n. g. for part of *Malthodes*, pp. 236, 250, FIORI, t. c.
- Mesopteron* n. g. for part of *Calopteron*, p. 123, *riveti* n. sp., Ecuador, p. 125, BOURGEOIS, Ann. Soc. ent. France 1905.
- Metapteron* n. g. for part of *Calopteron*, BOURGEOIS, p. 126, t. c.
- Phengodes plumosa*, light of, KNAB, p. 239, Canad. Ent. 1905 ; *P. laticollis*, sexes, BARBER, p. 196, P. ent. Soc. Washington 1905 ; *P. hieronymi*, SCHWARZ, p. 197, t. c.
- Philhedonus sericeus*, p. 277, *rugulosus*, p. 278, S. Africa, GORHAM, P. Zool. Soc. London 1905, ii, n. spp.
- Photuris*, display of light, KNAB, p. 238, Canad. Ent. 1905.
- P. corvus*, Bolivia, p. 208, *vestita*, *subdola*, Brazil, p. 209, OLIVIER, Ann. Soc. ent. Belgique 1905, n. spp.
- Plateros (Planeteros) curtus*, *escalerae*, p. 194, *flavus*, p. 195, Spanish Guinea, BOURGEOIS, Mem. Soc. Espan. i, n. spp.
- Podabrus alpinus* var. n. *ruficeps*, GABRIEL, p. 142, Deutsche ent Zeitschr. 1905.
- P. longissimus*, Japan, PIC, p. 113, Echange xxi, n. sp.
- Promalthodes* n. g. for part of *Malthodes*, pp. 235, 240, FIORI, Riv. Col. Ital. iii.
- Prothalmodes* subg. n. of *Malthodes*, FIORI, p. 239, t. c.
- Psilothrix (Dolichomorphus) subg. n.) rufimanus*, Bologna, FIORI, p. 82, t. c. n. sp.
- Rhagonycha fulva*, oviposition, FRIEDRICH, p. 493, Zeitschr. Insbiol. i ; *R. testacea* var. n. *taurinensis*, PIC, p. 105, Echange xxi.
- R. forticornis*, Bulghar Dag, PIC, p. 177, t. c. ; *R. holtzi*, Greece, PIC, p. 186, t. c. ; *R. (Absidia) vanlogeri*, Algeria, BOURGEOIS, p. 106, Bull. Soc. ent. France 1905 ; *R. drurei*, Kurdistan, PIC, p. 161, Echange xxi ; *R. caroli*, Japan, PIC, p. 121, t. c. : n. spp.
- Selasio (Euptilia) horni*, Ceylon, BOURGEOIS, p. 130, Ann. Soc. ent. France 1905, n. sp.
- Silis ceylonica*, Kandy, BOURGEOIS, p. 129, Ann. Soc. ent. France 1905 ;

- S. spinicollis*, Madagascar, FAIRMAIRE, p. 124, Ann. Soc. ent. Belge 1905 : n. spp.
Stadenus bolivari, Spanish Guinea, BOURGEOIS, p. 193, Mem. Soc. Espan. i, n. sp.
Telephorus; larval habits, REMER, pp. 12–14 z.-b. Sekt., Jahresber. Schlesisch. Ges. lxxxi.
T. testaceipes, Madagascar, FAIRMAIRE, p. 124, Ann. Soc. ent. Belge 1905, n. sp.
Trichoceble fulvohirta and allies, FIORI, p. 87, Riv. Col. ital. iii.
Zelotypus horni, Ceylon, BOURGEOIS, p. 132, Ann. Soc. ent. France 1905, n. sp.
Zygia notaticollis, Obock, PIC, p. 130, Echange xxi; *Z. alluaudi*, E. Africa, PIC, p. 303, Bull. Soc. ent. France 1905 : n. spp.
Xylobanus cardoni, Bengal, BOURGEOIS, p. 48, Ann. Soc. ent. Belgique 1905, n. sp.

CLERIDÆ.

- [Cf. GORHAM (676), HINTZ (750), SCHAEFFER (1324), SKINNER (1408), WICKHAM (1630).]
- Aphelochroa nigripes*, W. Africa, HINTZ, p. 308, Deutsche ent. Zeitschr. 1905, n. sp.
Cardiostichus; the W. African, HINTZ, p. 310, t. c.
Cephaloclerus tibialis, p. 311, *flavipes*, p. 312, W. Africa, HINTZ, t. c. n. spp.
Clerus quercus, p. 154, *pinus*, Arizona, *humeralis*, California, p. 155, SCHAEFFER, Bull. Brooklyn Inst. i : *C. bimaculatus*, Arizona, SKINNER, p. 291, Ent. News Philad. xvi : n. spp.
Cylidrus; colour-variation, etc., HINTZ, p. 305, Deutsche ent. Zeitschr. 1905.
Cymatodera; sex-characters, SCHAEFFER, pp. 152, 153, Bull. Brooklyn Inst. i.
C. uniformis, Arizona, p. 151, *santarosae*, Lower California, p. 152, SCHAEFFER, t. c.; *C. tricolor*, Arizona, SKINNER, p. 292, Ent. News Philad. xvi : n. spp.
Dorocolletus sordidus, Algoa Bay, GORHAM, p. 274, P. Zool. Soc. London 1905, ii, n. sp.
Erymanthus ater, W. Africa, HINTZ, p. 309, Deutsche ent. Zeitschr. 1905, n. sp.
Euplacocerus dimidiatus var. = (*apicalis*), HINTZ, p. 311, t. c.
Gyponyx algoensis, p. 272, *braunsi*, p. 273, S. Africa, GORHAM, P. Zool. Soc. London 1905, ii, n. spp.
Hydnocera niveifascia, Arizona, SCHAEFFER, p. 156, Bull. Brooklyn Inst. i ; *H. knausii*, Kansas, WICKHAM, p. 168, Canad. Ent. 1905 : n. spp.
Necrobia pilifera var. n. *cupreonitens*, LAUFFER, p. 406, Bol. Soc. espan. v. Opilo signatus, W. Africa, HINTZ, p. 307, Deutsche ent. Zeitschr. 1905, n. sp.
Orthopleuroides, characters ; HINTZ, p. 313, t. c.
Oxystigmatium cornutum, W. Africa, HINTZ, p. 309, t. c. n. sp.
Philoculus convexus, *elongatus*, W. Africa, HINTZ, p. 306, t. c. n. spp.
Phleocopus niger, *rufipennis*, Africa, HINTZ, p. 307, t. c. n. spp.
Plathanocera albopunctata, W. Africa, HINTZ, p. 310, t. c. n. sp.
Tenerus orientalis to *Lacordairius*, HINTZ, p. 314, t. c.
T. marginalis, p. 312, *grandis*, *miniatus*, *auratus*, p. 313, W. Africa, HINTZ, t. c. n. spp.
Thanasimus ornatus, W. Africa, HINTZ, p. 308, t. c. n. sp.
Tilloedenops n. g. p. 305, *brunneus*, n. sp., W. Africa, p. 306, HINTZ, t. c.
Thriocera bicinctella, S. Africa, GORHAM, p. 274, P. Zool. Soc. London 1905, ii, n. sp.

PTINIDÆ.

[Cf. FALL (538), LEA (928), LEINBERG (934), PIC (1175, 1182, 1187, 1188, 1192).]

Revision of *Ptinidae* of North America, FALL, pp. 97-295, Tr. Amer. ent. Soc. xxxi.

- Actenobius* n. g. for part of *Euceratocerus*, FALL, p. 155, t. c.
Anobiopsis n. g. p. 177, *sericans*, n. sp., California, p. 178, FALL, t. c.
Cœnocara frontalis, p. 271, *blanchardi*, p. 273, *neomexicana*, p. 274, *tenuipalpa*, p. 275, *inepta*, *ovalis*, p. 276, N. America, FALL, t. c. n. spp.
Cathorama cibrata, *goyosensis*, Brazil, PIC, p. 92, Naturaliste 1905; *C. vittiosum*, *impressifrons*, p. 234, *mutans*, p. 235, *grande*, *lentum*, *conophylum*, p. 236, *simplex*, *metasternale*, *inæquale*, p. 237, *gibbulum*, p. 238, *carinatum*, p. 239, *densus*, *dichroum*, *nigripenne*, p. 240, *dispar*, p. 241, *vestitum*, *placidum*, p. 242, *posticum*, *tumidum*, *nubilum*, p. 243, *longulum*, *uniforme*, *fastigiatum*, p. 244, *otiosum*, *congruum*, *vexatum*, p. 245, *porosum*, *convexum*, p. 247, *politum*, *triviale*, *conjunctum*, p. 248, *consobrinum*, p. 249, *pingue*, *vacuum*, p. 250, *cicatricosum*, *geminatum*, p. 251, *gracile*, *mancum*, *validum*, *confusum*, p. 252, *angustum*, p. 253, *parvum*, *turbidum*, p. 254, *indistinctum*, *exiguum*, p. 255, N. America, FALL, Tr. Amer. ent. Soc. xxxi : n. spp.
Cœlostethus americanus, p. 178, *alternatus*, *truncatus*, p. 188, FALL, t. c. n. spp.
Colposternus n. g. for *Trypopitys tenuilineatus* Horn, FALL, p. 190, t. c.
Cryptorama n. g. *oblongum*, Lower California, p. 256, *vorticale*, p. 257, n. spp., N. America, FALL, t. c.
Episernus granulatus var. n. *sulcatus*, LEINBERG, p. 18, *angulicollis* var. n. *striatus*, p. 20.
E. tenicollis, Finland, id., p. 21, t. c. n. sp.
Ernobius nigrinus and allies distinguished, GERHARDT, p. 221, Deutsche ent. Zeitschr. 1905.
E. socialis, p. 142, *convergens*, p. 143, *collaris*, *crotchii*, p. 144, *lacustris*, *fissuratus*, *nigrans*, p. 146, *politarsis*, *montanus*, p. 147, *opicus*, p. 149, *gentilis*, *trapezoideus*, p. 151, N. America, FALL, Tr. Amer. ent. Soc. xxxi, n. spp.
Eupactus = (*Thaptor Gorh.*) *nactus*, *advenus*, *obsoletus*, p. 220, *amœnus*, *mixtus*, p. 221, *canonicus*, *similis*, p. 222, N. America, FALL, t. c. ; *E. dejeani*, Mexico, PIC, p. 115, Echange xxi ; *E. testaceipes*, Cuba, PIC, p. 92, Naturaliste 1905 : n. spp.
Eutylistus n. g. p. 264, *ulkei*, *levisternus*, p. 266, *fallax*, p. 267, *facilis*, p. 268, n. spp., N. America, FALL, Tr. Amer. ent. Soc. xxxi.
Euvrilletta n. g. p. 196, *xyletinoides* n. sp., p. 197, California, FALL, t. c.
Hadrobrengmus defectus, p. 182, *pusillus*, p. 183, *laticollis*, *umbrosus*, p. 184, N. America, FALL, t. c. n. spp.
Hedobia angulata, California, FALL, p. 130, t. c. n. sp.
Lasioderma bicolor, *semirufum*, *hemiptychoides*, N. America, FALL, p. 205, t. c. n. spp.
Megorama n. g. p. 206, *viduum*, p. 207, *ingens*, p. 208, n. spp., California, FALL, t. c.
Microbregma emarginatum var. n. *granicollis*, FALL, p. 185, t. c.
Microzogus n. g. *insolens* n. sp., Florida, FALL, p. 135, t. c.
Niptinus n. g. *ovipennis* n. sp. p. 108, Texas, FALL, t. c.
Oligomerodes n. g. *occidentalis*, p. 161, *catalinae*, p. 162, n. spp., N. America, FALL, t. c.
Oligomerus tenellus, p. 164, *californicus*, p. 165, *brevipilis*, p. 166, n. spp., N. America, FALL, t. c.

- Ozognathus dubius*, Arizona, FALL, p. 137, t. c. n. sp.
Paralobium n. g. p. 152, *mundum* n. sp., California, p. 153, FALL, t. c.
Paussoptinus n. g. p. 381, between *Paussidæ* and *Ptinidæ*, *laticornis* n. sp.,
 Australia, p. 382, pl. xxvii, f. 7, LEA, P. Soc. Victoria xvii.
Petalium fauvei, Guadeloupe, p. 188, *alluaudi*, Madagascar, *longipenne*,
 Brazil, p. 189, PIC, Rev. Ent. franc. 1905; *P. schwarzi*, p. 214, *yuccæ*,
seriatum, p. 215, *californicum*, p. 216, N. America, FALL, Tr. Amer.
 ent. Soc. xxxi : n. spp.
Priotoma gounellei, Brazil, PIC, p. 115, Echange xxi; *Pristoma* (sic)
minuta, Caracas, PIC, p. 93, Naturaliste 1905; n. spp.
Pseudodorcatoma n. g. *ornata* n. sp., Guadeloupe, PIC, p. 171, Echange xxi.
Ptinus superbus = (*pyrenæus* PIC), REITTER, p. 200, Wien. ent. Zeit. xxiv.
P. (Gynopterus) barrosi, Portugal, PIC, p. 170, Echange xxi; *P. biserensis*,
 Algeria, PIC, p. 106, t. c.; *P. alternatus*, *cælebs*, p. 116, *agnatus*,
cognatus, p. 118, *longivestis*, p. 119, *strangulatus*, p. 120, *tumidus*, p. 121,
prolixus, p. 122, *hystrix*, *eximus*, p. 123, *concurrentis*, *fallax*, *vagratus*,
 p. 125, *feminialis*, p. 126, N. America, FALL, Tr. Amer. ent. Soc. xxxi,
 n. spp.
Stichoptychus n. g. *agonus* n. sp., Texas, FALL, p. 258, t. c.
Trichodesma klagesi, p. 173, N. America, *beyeri*, p. 174, Lower California,
 FALL, t. c. n. spp.
Utobium n. g. for *elegans* Horn, FALL, p. 134, t. c.
Vrilletta nigra, Mariposa, PIC, p. 171, Echange xxi; *V. blaisdelli*, p. 194,
laurentina, p. 195, *plumbea*, p. 196, N. America, FALL, Tr. Amer. ent.
 Soc. xxxi : n. spp.
Xarifa n. g. p. 137, *insularis* n. sp., California, p. 138, FALL, t. c.
Xeranopium n. g. *laticeps*, p. 158, *macrum*, p. 159, *desertum*, p. 160, n. spp.,
 N. America, FALL, t. c.
Xyletinus semilimbatus var. *testaceipennis*, PIC, p. 97, Echange xxi.
X. distans, p. 200, *harrisii*, p. 201, *gracilipes*, p. 203, N. America, FALL, Tr.
 Amer. ent. Soc. xxxi, n. spp.
Xyletomerus n. g. p. 197, *histicus* n. sp., California, p. 198, FALL, t. c.

LYMEXYLONIDÆ, BOSTRICHIDÆ, CIOIDÆ.

- Atractocerus horni*, Ceylon, BOURGEOIS, p. 133, Ann. Soc. ent. France 1905,
 n. sp.
Bostrychopsis villosula n. n. for *cephalotes* Lesne non Olivier, LESNE, p. 298,
 Bull. Mus. Paris 1905.
Enneadesmus sculptifrons, Caffraria, LESNE, p. 275, Bull. Soc. ent. France
 1905, n. sp.
Sinoxylon doliolum, E. Africa, p. 275, *cafrum*, S. Africa, p. 276, LESNE, t. c.
 n. spp.
Rhipidandrus : see *Tenebrionidæ*.

TENEBRIONIDÆ.

[Cf. BROUN (194), CARTER (284), ESCALERA (523, 524), FAIRMAIRE (534,
 535), GEBIEN (644–646), LEA (928), PIC (1184), REITTER (1244, 1246),
 SHARP (670).]

- GEBIEN gives a long list of corrigenda to the *Tenebrionidæ* of the Munich Catalogue, and to Champion's supplement thereto; Wien. ent. Zeit.
 xxiv, pp. 252–260.
 Table of the subfamilies of palæarctic *Tenebrionidæ*, REITTER, pp. 25–34,
 Verh. Ver. Brunn. xlii.
 Twelve spp. n. *Tenebrionidæ*, Sinai, Crotch 1871 but not yet recorded,
 SHARP, p. 520, Ann. Nat. Hist. (7) xv.

- Adelium helmsi, reticulatum*, p. 181, *violaceum*, p. 182, *minor*, p. 183, *globulosum*, p. 184, Australia, CARTER, P. Linn. Soc. N. S. Wales xxx, n. spp.
- Adesmia jägerskioeldi*, White Nile, GEBIEN, p. 12, Jägerskiöld exp. No. 10a, n. sp.
- Akidini*, tables of palaeartic, REITTER, pp. 36–49, Verh. Ver. Brunn xlii.
- Akis melitana*, Malta, p. 40, *biskrensis*, Algeria, p. 41, REITTER, t. c. n. spp.
- Alaephus nitidipennis*, p. 275, California, *gracilis*, p. 276, Arizona, FALL, Canad. Ent. 1905, n. spp.
- Alphasida* subg. n. see *Asida*.
- Ammidanemia* subg. n. of *Anemia, asperula* Reitt., etc., REITTER, p. 132, Verh. Ver. Brunn xlii.
- Asida*; revision of Iberian, ESCALERA, pp. 377–402, 430–450, Bol. Soc. espan. v.
- A. (*Alphasida* subg. n. p. 380) *gaditana*, p. 385, *volxemi, bécerra*, p. 387, *rufopubescens*, p. 388, A. (*Globasida* subg. n. p. 430) *cartagenica*, p. 433, *intermedia, bacaresensis*, p. 435, *frigida, rotunda, novissima*, p. 436, *deformis, almeriana*, p. 437, *nerjenensis*, p. 438, *segurensis, quadrata*, p. 439, *dubiosa, curvatipennis*, p. 440, Iberian penins., ESCALERA, t. c. n. spp.
- Asidelia* n. g. near *Nyctelia, contracta* n. sp., Argentina, FAIRMAIRE, p. 296, Ann. Soc. ent. France 1905.
- Aulonolcus* subg. n. of *Lobothorax*, for *altaicus* Gebl., REITTER, p. 168, Verh. Ver. Brunn xlii.
- Cabirus dentimanus*, Samarcand, p. 64, *procerulus*, Aulie-Ata, p. 65, *puncticollis*, Buchara, *gracilis*, Mardin, p. 66, *castaneus*, Jerusalem, *subpubescens*, Beyrouth, p. 67, *desbrochersi, simonis*, Syria, p. 68, REITTER, t. c. n. spp.
- Callismilax bavayi, variolosa*, p. 216, *interrupta, fulgorans*, p. 217, *coelestina, numeensis*, p. 218, *externa, basalis, suturalis*, p. 220, *arcitenens*, p. 221, *caviceps, gloriosa*, p. 222, *semiviolacea, plicicollis, auripennis*, p. 223, *virescens, sulcipennis*, p. 224, *setigera*, p. 225, New Caledonia, FAUVEL, Rev. Ent. franc. xxiv, n. spp.
- Camaria tenuestriata*, p. 126, *semiænescens*, p. 127, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique 1905; *C. obtusa*, p. 300, *impressifrons, biaculeata*, p. 301, Argentina, FAIRMAIRE, Ann. Soc. ent. France 1905: n. spp.
- Cerostena infravestita*, p. 297, *semistrigosa*, p. 298, Argentina, FAIRMAIRE, t. c. n. spp.
- Clilbe costella*, New Zealand, BROUN, p. 544, Ann. Nat. Hist. (7) xv, n. sp.
- Colpopatrum* subg. n. of *Opatrum*, for *asperipenne* Reitt., REITTER, p. 148, Verh. Ver. Brunn xlii.
- Colpotus punctipleurus*, Asia Minor, REITTER, p. 63, t. c. n. sp.
- Coripera morleyana*, p. 184, *distincta*, p. 185, N. S. Wales, CARTER, P. Linn. Soc. N. S. Wales xxx, n. spp.
- Dendaroscelis* subg. n. cf. *Dendarus*.
- Dendarus* (*Pandarinus*) *seidlitzii*, Dalmatia, p. 80, *vagabundus* (n. n. for *vagans* Reitt.), Transcaspian, p. 84, *D. scopariipes*, Cerigo, p. 86, *D. (Dendaroscelis) subg. n.) serripes*, Spain, p. 92, REITTER, Verh. Ver. Brunn xlii, n. spp.
- Diastolinus acuticollis, quadricollis, fortipes*, Argentina, FAIRMAIRE, p. 299, Ann. Soc. ent. France 1905, n. spp.
- Dietyopsis bucculata, tenuis*, Tucuman, FAIRMAIRE, p. 302, t. c. n. spp.
- Dilamus bohni*, Egypt, REITTER, p. 71, Verh. Ver. Brunn xlii, n. sp.
- Discotus* subg. n. cf. *Lobothorax*.
- Ectomopsis* n. g. near *Camarimena*, p. 299, *bruchi* n. sp., Argentina, p. 300, FAIRMAIRE, Ann. Soc. ent. France 1905.

- Eledona*; structure of feet, relations with *Rhipidandrus*, SHARP, Biol. Centr.-Amer. Col. ii, pt. 1, p. 690.
- Emallodera granocostata, strangulata*, Argentina, FAIRMAIRE, p. 290, Ann. Soc. ent. France 1905, n. spp.
- Encara nigrum*, N. S. Wales CARTER, p. 178, P. Linn. Soc. N. S. Wales xxx, n. sp.
- Entomoderes pustulosus*, Argentina, FAIRMAIRE, p. 298, Ann. Soc. ent. France 1905, n. sp.
- Epipedonota planiuscula*, Argentina, FAIRMAIRE, p. 297, t. c. n. sp.
- Eulipus quirogai*, Rio de Oro, ESCALERA, p. 468, Bol. Soc. espan. v, n. sp.
- Eumylada* subg. n. of *Myladina, punctifera* Reitt., REITTER, p. 170, Verh. Ver. Brunn. xlvi.
- Eurycaulus* (*Scleronimon* subg. n.) *peyerimhoffi*, Sinai, *granulatus*, Egypt, REITTER, t. c. n. spp.
- Eustenia* n. g. near *Praogenia, tenuinembris* n. sp., Tucuman, FAIRMAIRE, p. 303, Ann. Soc. ent. France 1905.
- Globasida* subg. n. see *Aśida*.
- Gonocephalum arisi*, Transcaspian, REITTER, p. 92, Wien. ent. Zeit. xxiv, n. sp.
- Gonocephalum quadrinodosum*, China, p. 146, *G. (Megadasus)* subg. n. p. 146) *subsetosum*, Canton, p. 147, REITTER, Verh. Ver. Brunn. xlvi, n. sp.
- Heliocrates* subg. n. cf. *Heliophilus*.
- Heliophilus* (*Heliocrates* subg. n.) *strigosus*, p. 98, *humerangulus*, Andalusia, *sulcipennis*, Escorial, p. 99, *H. parcefoveatus*, Spain and Portugal, p. 100, *immarginatus, conjunctus*, p. 101, *haydeni, sculpturatus*, p. 102, *subimpressus*, p. 103, Spain, REITTER, t. c. n. spp.
- Hemitrichestes* subg. n. of *Lobothorax* for *hirsutus* Reitt., REITTER, p. 169, t. c.
- Heterophylus seriepunctatus*, Algeria, p. 69, *tibialis*, Transcaspian, p. 70, REITTER, t. c. n. spp.
- Heterotarsus insularis*, Madagascar, FAIRMAIRE, p. 125, Ann. Soc. ent. Belgique 1905, n. sp.
- Hoplambius* subg. n. of *Melambius*, *Hoplarion melanoides*, REITTER, p. 114, Verh. Ver. Brunn. xlvi.
- Hoplarobius* subg. n. of *Micrositius* for *decurvatus* Fairm., etc., REITTER, p. 115, t. c.
- Isocerus cameroni*, Portugal, REITTER, p. 78, t. c. n. sp.
- Japetus* subg. n. of *Lobothorax* for *Opatrum melanarium* Er., REITTER, p. 160, t. c.
- Lesbida* subg. n. cf. *Melanesthes*.
- Litoborus subtilimargo*, Algeria, REITTER, p. 113, Verh. Ver. Brunn. xlvi, n. sp.
- Litororus* subg. n. of *Olocrates* for *semicostatus* Muls., REITTER, p. 96, t. c.
- Lobothorax* (*Discotus* subg. n. p. 161) *netuschili*, Chinese Turkestan, p. 162, *L. auliensis*, Aulie-Ata, p. 163, *oblongopunctatus*, Transcaspian, p. 164, REITTER, t. c. n. spp.
- Megadasus* subg. n. cf. *Gonocephalum*.
- Melanesthes* (*Lesbida* subg. n. p. 173) *coriaria*, Turkestan, p. 173, REITTER, Verh. Ver. Brunn. xlvi, n. sp.
- Meladocrates* subg. n. of *Olocrates*, *planiusculus* and *viaticus* Muls., REITTER, p. 96, t. c.
- Menephilus aeneus*, Sydney, CARTER, p. 179, P. Linn. Soc. N. S. Wales xxx, n. sp.
- Mesomorphus* n. g. p. 73, *varendorffii*, Madeira or Congo, *dermestoides*, Centr. China, p. 74, n. spp., REITTER, Verh. Ver. Brunn. xlvi.
- Micrositius opacus*, Besika Bay, p. 116, *M. (Platyzolus) tenebrioides*, Huelva,

- p. 118, *milleri*, p. 120, *lapidarius*, p. 121, Andalusia, REITTER, t. c. n. spp.
- Miglica* subg. n. of *Melanesthes* for *laticollis* Gebl., REITTER, p. 171, t. c.
- Mogadoria* n. g. for *Eulipus subelegans* Fairm., ESCALERA, p. 467, Bol. Soc. espan. v.
- Mongolesthes* subg. n. of *Melanesthes* for *heydeni* Csiki, REITTER, p. 174, Verh. Ver. Brunn. xlii.
- Morica pharaao* Egypt, REITTER, p. 38, t. c. n. sp.
- Netuschilia* n. g. for *Lachnopus hauseri*, REITTER, p. 35, t. c.
- Nyctelia timarchoides*, *suturacava*, p. 291, *geometrica*, *confusa*, *discoidalis*, *exasperata*, p. 292, *biapoides*, *pinguis*, *quadricarinata*, p. 293, *unicostata*, *bifoveata*, *planicauda*, p. 294, *producta*, *dorsata*, *crassecostata*, p. 295, *quadricollis*, p. 296, Argentina, FAIRMAIRE, Ann. Soc. ent. France 1905, n. spp.
- Nycteropus protensus*, *chrysocalceus*, p. 125, *attenuatus*, *crassicollis*, p. 126, Madagascar, FAIRMAIRE, p. 126, Ann. Soc. ent. Belgique 1905, n. spp.
- Ochrolamus* subg. n. of *Dilamus* for *pictus* Mars., REITTER, Verh. Ver. Brunn. xlii.
- Olocrates italicus*, Italy, p. 93, *hamilearis*, Andalusia, p. 94, *subhelopates*, Spain, p. 95, REITTER, t. c. n. spp.
- Opatriini*; the palearctic tabulated, REITTER, pp. 106–182, t. c.
- Opelonesthes* subg. n. of *Melanesthes* for *punctipennis* Reitt., REITTER, p. 174, t. c.
- Opatum tebessanum*, Algeria, p. 153, *cypreaum*, Cyprus, p. 155, *italicum*, Ischia, p. 156, *alutaceum*, Khartoum, p. 158, REITTER, t. c. n. spp.
- Otrintus jacksoni*, N. S. Wales, CARTER, p. 180, P. Linn. Soc. N. S. Wales xxx, n. sp.
- Pachypterus serrulatus*, Caucasus, REITTER, p. 75, Verh. Ver. Brunn. xlii, n. sp.
- Pedinus bodemeyeri*, Asia Minor, p. 56, *paradoxus*, Syria, p. 59, *strigicollis*, Taurus, p. 61, REITTER, t. c. n. spp.
- Pentholasius* subg. n. of *Clitobius* for *variolatus* Allard, REITTER, p. 178, t. c.
- Penthomegus* subg. n. of *Lobothorax* for *granulosus* Mén. etc., REITTER, p. 162, t. c.
- Phobelius semigranosus*, Tucuman, FAIRMAIRE, p. 300, Ann. Soc. ent. France 1905, n. sp.
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- Pimelia punctata* var. n. *manchega*, LAUFFER, p. 406, Bol. Soc. espan. v.
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- Rhizalemus* subg. n. of *Dendarus*, *D. pauper*, etc., REITTER, p. 90, Verh. Ver. Brunn. xlii.
- Scleron aequale*, Arabia, p. 124, *subolathratum*, Egypt, p. 125, *discicolle*, India and Java, p. 126, REITTER, t. c. n. spp.
- Scleronimon* subg. n. cf. *Eurycaulus*.
- Scotobius caraboides*, *cibricollis*, *quadricostatus*, Argentina, FAIRMAIRE, p. 289, Ann. Soc. ent. France 1905, n. spp.

- Solskyia subperegrina*, Turkestan, REITTER, p. 49, Verh. Ver. Brunn. xlvi,
n. sp.
- Stenopsis punica*, Tunis, PIC, p. 98, Echange xxi, n. sp.
- Tenebrio noctivagus* var. n. *intermedius*, FIORI, p. 226, Riv. Col. Ital. i; T.,
parthenogenetic eggs, SALING, Zool. Anz. xxix, pp. 587–590.
- Thesilea mirabilis*, p. 210, *kanalensis*, *politula*, *versicolor*, p. 211, *purpurea*,
p. 213, New Caledonia, FAUVEL, Rev. Ent. franc. xxiv, n. spp.
- Trachymetus* n. g. for *Pachypterus elongatus* Muls., REITTER, p. 76, Verh.
Ver. Bruan. xlvi.
- Tribolium myrmecophilum*, Australia, LEA, p. 383, P. Soc. Victoria xvii,
n. sp.

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[Cf. BEDEL (92), FAIRMAIRE (535), FAUVEL (550A), PIC (1191, 1193),
SCHAEFFER (1324).]

- Alethia carbonaria*, Arizona, SCHAEFFER, p. 176, Bull. Brooklyn Inst. i,
n. sp.
- Allecula strigicollis*, p. 227, *rugicollis*, p. 228, *quadrillum*, p. 229, *phyllocera*,
simplex, p. 230, *tenuicornis*, p. 231, *pusilla*, *insulana*, p. 232, *laevior*,
cupreipennis, p. 233, *umbonata*, p. 234, *montana*, *curticollis*, p. 235,
anthracina, *opacula*, p. 236, New Caledonia, FAUVEL, Rev. Ent. franc.
xxiv, n. spp.
- Crypticus vaucheri*, Morocco, BEDEL, p. 272, Bull. Soc. ent. France 1905,
n. sp.
- Cteniopus angustatus*, Mesopotamia, PIC, p. 177, Echange xxi, n. sp.
- Hymenalnia obscuripennis*, Adana, PIC, p. 162, Echange xxi, n. sp.
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n. sp.
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n. sp.

MELANDRYIDÆ.

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HUBENTHAL, p. 57, Deutsche ent. Zeitschr. 1905.
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- Phlaeotrya nebulosa*, p. 237, *lancifera*, p. 238, New Caledonia, FAUVEL,
Rev. Ent. franc. 1904, n. spp.

LAGRIIDÆ.

- Nemostira vittulata*, *fuscipennis*, p. 127, *striatopunctata*, p. 128, Madagascar,
FAIRMAIRE, Ann. Soc. ent. Belgique 1905, n. spp.
- Statira defecta*, p. 175, *huachucae*, p. 176, Arizona, SCHAEFFER, Bull.
Brooklyn Inst. i; *S. simulans*, Texas, *robusta*, Arizona, SCHAEFFER,
p. 180, J. N. York. Ent. Soc. : n. spp.

XYLOPHILIDÆ, ANTHICIDÆ.

[Cf. CARTER (284), PIC (1170, 1172, 1176–1178, 1187, 1196), REITTER
(1249).]

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pp. 181–286, pl. vii.

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- A. foedus*; *A. (Lappus) proprius*, p. 492, *distincticeps*, Peru, *herzi*, Transcaspian, p. 493, PIC, Annuaire Mus. St. Petersb. ix; *A. arisi*, Samarcand, PIC, p. 186, Echange 1905; *A. lobatus*, Algeria, *remotus*, Fiji, PIC, p. 99, Bull. Soc. ent. France 1905 : n. spp.
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- Hylophilus bottegoi*, Lago, p. 197, *diversicornis*, Natal, p. 199, *punctatus*, Loyalty Ids., p. 204, *H. (Emelinus) magniceps*, p. 267, *H. (Elonus) distincticornis*, *H. (Scanylus) vicinus*, *H. (Vanonus) semibrunneus*, p. 268, *H. apicipennis*, *H. (Zonantes) obscuricolor*, *rufithorax*, p. 269, Brazil, *H. (Olotelus) apicalis*, S. Africa, p. 282, PIC, Ann. Soc. ent. France 1905; *H. escalerae*, *niger*, p. 203, *inimpressus*, *longus*, *validicornis*, p. 204, *bolivari*, p. 205, *dentatipes*, p. 206, *cephalotes*, *dispar*, *biafrensis*, p. 207, Spanish Guinea, PIC, Mem. Soc. Espan. i : n. spp.
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- Macrosiagon carinicollis*, New Caledonia, FAUVEL, p. 242, Rev. Ent. franc. 1905, n. sp.
- Notoxus trifasciatus* var. n. *rosti*, PIC, p. 113, Echange xxi.
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Halictophagus (*Bruesia* subg. n. p. 102) *australensis*, *phaeodes*, p. 103, *stenodes*, *H. schwartzii*, p. 104, Australia, *americanus*, Ohio, p. 105, PERKINS, t. c. n. spp.
Megalechthrus n. g. p. 105, *tryoni* n. sp., Queensland, p. 106, PERKINS, t. c.
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MORDELLIDÆ.

[Cf. FAIRMAIRE (534), FAUVEL (550A).]

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CANTHARIDÆ.

[Cf. FAUVEL (550A), PIC (1187), REITTER (1248, 1254), SCHAEFFER (1323, 1324), WICKHAM (1630).]

Meloidæ of western France, HOULBERT & BÉTIS (784).*Alosimus viridissimus* var. n. *bipartitus*, PIC, p. 107, Echange xxi.*A. atripes*, Persia, PIC, p. 130, t. c. n. sp.*Epicauta obscurcephala*, Tien-tsin, REITTER, p. 195, Wien. ent. Zeit. xxxiv, n. sp.*Isopentra* merged in *Epicauta*, REITTER, l. c.*Lydus tenuicollis*, Persia, REITTER, p. 246, t. c. n. sp.*Meloe matthieseni*, *frontalis*, Persia, REITTER, p. 245, t. c. n. spp.*Pyrota virgata* and *tenuicostatis*, SCHAEFFER, pp. 177, 178, Bull. Brooklyn Inst. i.*Zonabris curta*, *wagneri*, pp. 167–170, *Z. curta* var. n. *ernesti*, p. 170, PIC, Rev. Sci. Bourbonnais 1905.*Zonitis dunniana* and *perforata* Cas. to *Nemognatha*, SCHAEFFER, p. 138, Bull. Brooklyn Inst. i.*Z. nigripennis*, p. 243, *atriceps*, p. 244, New Caledonia, FAUVEL, Rev. Ent. franc. xxiv; *Z. vermiculatus*, Utah, SCHAEFFER, p. 138, Bull. Brooklyn Inst. i; *Z. sayi*, *californica*, N. America, WICKHAM, p. 171, Canad. Ent. 1905 : n. spp.

PYTHIDÆ.

[Cf. PIC (1182, 1188), REITTER (1255).]

Lanthanus latissimus, Bolivia, PIC, p. 116, Echange xxi, n. sp.*Rhinosimus caucasicus*, Caucasus, REITTER, p. 312, Wien. ent. Zeit. xxiv; *R. cæruleus*, New Guinea, PIC, p. 93, Naturaliste 1905 : n. spp.

ŒDEMERIDÆ.

Œdemera virescens var. n. *cupreomicans*, REITTER, p. 93, Wien. ent. Zeit. xxiv.*Œ. laufferi*, Spain, REITTER, p. 206, t. c. n. sp.*Pseudolyceus montanus*, p. 187, *rufipennis*, p. 188, N. S. Wales, CARTER, P. Linn. Soc. N. S. Wales xxx, n. spp.

CURCULIONIDÆ.

[Cf. AURIVILLIUS (42), BEDEL (91), BEGUIN-BILLECOQ (93, 94), BROUN (194), CAMERON (237), CHAMPION (670), CHITTENDEN (307, 308), CORTI (372), DESBROCHERS (399), FAIRMAIRE (534), FIORI (564, 567), FLACH (574), FORMÁNEK (593, 594), HARTMANN (726, 727), HELLER (736, 737),

HOLDHAUS & WAGNER (754), HUNTER & HINDS (798, 799), LEA (924, 925), LESNE (943), MARSHALL (1010), PETRI (1157), PIC (1184, 1187, 1189-1191, 1193), REITTER (1254, 1256), RITSEMA (1275), SCHAEFFER (1323, 1324), SCHULTZE (1357), SSILANTJEW (1441, 1442), VETH (1547), VITALE (1554), WAGNER (1556).]

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A. solarii, Italy, FIORI, p. 163, Riv. Col. ital. i ; *A. algiricus*, Algeria, PIC, p. 99, Echange xxi ; *A. rugirostris*, pl. xxiii, fig. 9, *latescens*, fig. 10, p. 473, *fulvorubritatus*, fig. 11, *cinericius*, fig. 12, *caricollis*, fig. 13, p. 474, *indutus*, fig. 14, *rufotuberculatus*, fig. 15, p. 475, *quadrirtuberculatus*, *rugulosus*, p. 476, *tricinctus*, fig. 17, *foveolatus*, *crassisetis*, p. 477, *horrens*, *tantillus*, p. 478, *exaratus*, p. 479, Centr. America, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. 4 : n. spp.

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Æmus n. g. near *Conotrachelus, tuberosus* n. sp., Panama, pl. xxii, fig. 2, CHAMPION, p. 445, t. c.

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- Cylindrocorynus dentipes*, pl. xxv, fig. 17, p. 513, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. 4.
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- Xenosomus inflatus*, pl. xxiii, fig. 5, *turpis*, Guatemala, CHAMPION, p. 469, t. c. n. spp.
- Zascelis irrorata* Lec. pl. xxvi, fig. 3, p. 523, *affaber*, fig. 5, p. 524, CHAMPION, t. c.
- Z. carinipes*, pl. xxvi, fig. 4, p. 523, *brevicollis*, fig. 6, p. 524, *sulcifrons*, p. 7, *rugosa*, p. 525, *glabrata*, fig. 8, p. 526, Centr. America, CHAMPION, t. c. n. spp.

SCOLYTIDÆ.

[Cf. EICELBAUM (489), FUCHS (625), HAGEDORN (713, 714), HOPKINS (758–760), NÜSIMA (1110), REITTER (1254), SCHAFUSS (1328), SCHEWYREW (1330), SCHOLZ (1338).]

The habits of European *Scolytidae*, SCHEWYREW (1330).

The mouth parts of the larvae, HOPKINS, pp. 143–149, pls. iv, v, P. ent. Soc. Washington vii.

The stridulating organs in *Scolytus*, SCHOLZ, Ins. Börse 1905, pp. 143, 144. Translation of Eichhoff's table of food plants and form of galleries of European, GROUZELLE, Echange xxi, pp. 149 etc.

Amphicranus, synopsis, p. 289, A. *elegans*, pl. ix, fig. 5, p. 290, BLANDFORD, Biol. Centr.-Amer. Col. iv, pt. 6.

Amphicranus lesnei, Columbia, HAGEDORN, p. 550, Bull. Mus. Paris x; A. *balteatus*, pl. ix, fig. 6, p. 291, *belti*, fig. 7, *torneutes*, fig. 8, p. 292, *brevipennis*, fig. 9, Centr. America, *schaufussi*, Venezuela, p. 293, *grouvellei*, Brazil ?, *collaris*, fig. 10, p. 294, *tenuis*, fig. 11, *filiformis*, fig. 12, p. 295, *terebella*, fig. 13, *fastigatus*, fig. 14, p. 296, *propugnatus*, fig. 15, p. 297, *hybridus*, fig. 16, p. 298, Centr. America; id. t. c. n. spp.

Camptocerus striatulus, Guiana, HAGEDORN, p. 547, Bull. Mus. Paris x, n. sp.

Chortastus n. g. *Hylesinides*, *camerunus* n. sp., W. Africa, SCHAFUSS, p. 15, Ins. Börse 1905.

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- C. cardamomi*, Ceylon, SCHAFUSS, p. 8, t. c. n. sp.
Crossotarsus banghaasi, E. Africa, p. 87, *cælocephalus*, Cameroons, p. 103, SCHAFUSS, t. c. n. spp.
Cryphalus grothii, larva, EICHELBAUM, pp. 248–250, Zeitschr. Insbiol. i.
Crypsinorhinus n. g. p. 131, *chloropholooides* n. sp., Madagascar, p. 132, FAIRMAIRE, Ann. Soc. ent. Belgique 1905.
Dacryostactus n. g. *Hylesinides*, *kolbei* n. sp., S. Africa, SCHAFUSS, p. 79, Ins. Börse 1905.
Dendroctonus ponderosæ, natural history and ravages, HOPKINS, Bull. U. S. Dep. Agric. Ent. No. 56.
D. mexicanus, Amecameca, HOPKINS, p. 80, P. ent. Soc. Washington vii, n. sp.
Gnathotrichus nitidifrons, Mexico, HOPKINS, p. 72, t. c. n. sp.
Hylesinus orni, Centr. Europe, FUCHS, p. 51, Munchen. Kol. Zeitschr. iii, n. sp.
Lissoclastus n. g. *Hylesinides*, *pimeloides* n. sp., Cameroons, SCHAFUSS, p. 71, Ins. Börse 1905.
Meringopalpus n. g. *Hylesinidarum*, p. 547, *fallax* n. sp., Venezuela, p. 548, HAGEDORN, Bull. Mus. Paris x.
Mitosoma rugosum, Madagascar, SCHAFUSS, p. 19, Ins. Börse 1905, n. sp.
Phlaeophthorus moriperda, Mexico, HOPKINS, p. 77, P. ent. Soc. Washington vii, n. sp.
Phlaeoxinus tacubayaæ, p. 78, *baumannii*, p. 79, Mexico, HOPKINS, t. c. n. spp.
Phthorius edentatus, Venezuela, HAGEDORN, p. 549, Bull. Mus. Paris x, n. sp.
• *Pityophthorus chaleensis*, p. 73, *herrerae*, p. 74, Mexico, HOPKINS, P. ent. Soc. Washington vii, n. spp.
Platypus pini, Mexico, HOPKINS, p. 71, t. c. n. sp.
Pterocyclon dimidiatum, Guiana, HAGEDORN, p. 550, Bull. Mus. Paris x ;
P. bispinum, p. 281, pl. viii, fig. 19, *vittatum*, fig. 20, p. 282, *sulcatum*, *ferrarii*, fig. 23, p. 284, *jimbriaticorne*, fig. 24, p. 285, Centr. America, BLANDFORD, Biol. Centr.-Amer. Col. iv, pt. 6 : n. spp.
Scolytoplatypus, composition of the genus, p. 63, *S. pubescens* ♂, p. 64, HAGEDORN, Ins. Börse 1905.
S. hova, Madagascar, SCHAFUSS, p. 12, t. c. ; *S. eichelbaumi*, E. Africa, HAGEDORN, p. 64, t. c. : n. spp.
Scolytus chikisanii, *curviventralis*, *aequipunctatus*, Japan, NUSIMA, J. Sapporo Agric. Coll. ii, n. spp. [not seen by Recorder, Cf. Munchen. Kol. Zeitschr. iii, p. 118] ; *S. productus*, Venezuela, HAGEDORN, p. 547, Bull. Mus. Paris x : n. sp.
Stephanoderes moschatæ, Guadeloupe, SCHAFUSS, p. 8, Ins. Börse 1905, n. sp.
Tomicus mexicanus, p. 75, *bonansei*, p. 76, Mexico, HOPKINS, P. ent. Soc. Washington vii, n. spp.
Tricolus n. g. p. 286, near *Pterocyclon*, *ovicollis*, pl. ix, fig. 3, *nodifer*, fig. 4, p. 287, n. spp., Guatemala, BLANDFORD, Biol. Centr.-Amer. Col. iv, pt. 6.
Xyleborus meuseli, E. Siberia, REITTER, p. 249, Wien. ent. Zeit. xxiv ; *X. triton*, p. 18, *fraterculus*, p. 19, Madagascar, SCHAFUSS, Ins. Börse 1905 ; *X. conifer*, *camopinus*, Guiana, HAGEDORN, p. 549, Bull. Mus. Paris x : n. spp.

ANTHRIBIDÆ.

Catalogue of Anthribidae, 217 genera, 1465 species, BOVIE, pp. 218–334, Ann. Soc. ent. Belgique 1905.

CERAMBYCIDÆ.

[Cf. CHOBAUT (310), DANIEL (387), DISTANT (421), FAIRMAIRE (534, 536), FALL (542), GOUNELLE (677, 679), HEATH (730, 731), HELLER (737), LAMEERE (910), MAYET (1016), MJÖBERG (1049), MÜLLER (1079), PIC (1173, 1181, 1187, 1190), REITTER (1246, 1253), SCHAEFFER (1323, 1324), SHARP (1385), SHARP & SMITH (1385), SKINNER (1408), WANDOLLECK (1565), WEBB (1592), WEISE (1601), WICKHAM (1630), ZANG (1658).]

Longicornia, in Baltic amber, redetermination of Berendt's species ; also n. spp. cf. Palaeoent. p. 128.

The ♀ abdomen of numerous forms, WANDOLLECK, Zool. Jahrb. Anat. xxii, pp. 477–576, pl. xxviii.

The Recorder has now seen parts 1 & 2 of Cah. v of PIC's Materiaux etc. and has contented himself with extracting what he believes to be intended as new species.

Acanthocinus linearis, Arizona, SKINNER, p. 290, Ent. News Philad. xvi, n. sp.

Agapanthia pustulifera, Jerusalem, PIC, p. 12, Mat. Long. Cah. v, 2 ; *A. subnuda*, Transcaspian, REITTER, p. 93, Wien. ent. Zeit. xxiv : n. spp.

Anaglyptus luteofasciatus, Morea, PIC, p. 153, Echange xxi, n. sp.

Ancylistus transversus, Madagascar, FAIRMAIRE, p. 137, Ann. Soc. ent. Belgique 1905, n. sp.

Artelida calcarata, *fuscosericans*, Madagascar, FAIRMAIRE, p. 134, t. c. n. spp.

Asemum striatum, larva, SHARP & SMITH, p. 162, pl. ix, fig. 6, Tr. ent. Soc. London 1905.

Astynoscelis n. g. near *Rhopaloscelis*, *longicornis* n. sp., Mantchuria, PIC, p. 8, Mat. Long. Cah. v, 1.

Brachypterooma holtzi, Taurus, PIC, p. 114, Echange xxi, n. sp.

Brachytatus notabilis, p. 136, *bipartitus*, p. 137, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique 1905, n. spp.

Callimus semicyaneus, Greece, PIC, p. 187, Echange 1905, n. sp.

Calocerambyx n. g. near *Tetraschema*, p. 66, *hauseri* n. sp., New Guinea, p. 67, HELLER, Deutsche ent. Zeitschr. 1905.

Cephalallus n. g. near *Criocephalus*, *oberthuri*, n. sp., Yunnan, SHARP, p. 148, Tr. ent. Soc. London 1905.

Cephalocrius n. g. for *Criocephalus syriacus* Reitter, SHARP, p. 149, t. c.

Ceresium rugulipenne, Madagascar, FAIRMAIRE, p. 135, Ann. Soc. ent. Belgique 1905 ; *C. vitidorsum*, Yunnan, PIC, p. 10, Mat. Long. Cah. v, 1 : n. spp.

Chariesthes rufula, Madagascar, FAIRMAIRE, p. 138, Ann. Soc. ent. Belgique 1905, n. sp.

Clytanthus hircanus, Persia, PIC, p. 114, Echange xxi, n. sp.

Clytus arvicola var. n. *tridentata*, BLEUSE, p. 20, Bull. Soc. ent. France 1905.

C. circassicus, Circassia, PIC, p. 10, Mat. Long. Cah. v, 2, n. sp.

Coremia bruchi, Tucuman, GOUNELLE, p. 227, Bull. Soc. ent. France 1905, n. sp.

Criocephalinæ, new group, SHARP, p. 147, Tr. ent. Soc. London 1905.

Criocephalus, monograph, *C. pinetorum*, valid species, p. 155, ♀, p. 156, *C. ferus* var. n. *hispanicus*, p. 157, *C. obsoletus* Rand. = (*mexicanus* Th.), *C. ferus*, larva, pl. ix, fig. 5, SHARP, t. c.

C. deceptor, W. Tibet, p. 151, *coreanus*, Korea, p. 153, *tibetanus*, Tibet, *exoticus*, Chin Hills, p. 159, SHARP, t. c. n. spp.

Demonax mongtsensis, Yunnan, PIC, p. 12, Mat. Long. Cah. v, 1, n. sp.

Derolus argentifer, Yunnan, PIC, p. 11, t. c. n. sp.

- Desmocerus piperi*, Washington, WEBB, p. 104, P. ent. Soc. Washington vii, n. sp.
- Dorcadion arenarium*, the races with numerous varr. n., MÜLLER, pp. 129-153, Wien. ent. Zeit. xxiv; *D. arenarium* var. n. *marsicanum*, FRACASSI, p. 112, Riv. Col. ital. iii; *D. biforme* var. n. *discomaculatum* PIC, p. 187, Echange 1905; *D. talyschense* var. n. *morgani*, PIC, p. 301, Bull. Mus. Paris 1905; *D. navasi* and allies, NAVÁS, pp. 272, 273, Bol. Soc. Aragon. iv; *D. culminicola holtzi* subsp. n., PIC, p. 115, Echange xxi.
- D. grandevittatum*, Turkey, *subjunctum*, Greece, p. 7, *maljushenkoi*, Caucasus, p. 8, PIC, Mat. Long. Cah. v, 1; *D. henrici*, Tokat, PIC, p. 156, Echange xxi; *D. semiargentatum*, Persia, PIC, p. 301, Bull. Mus. Paris 1905 : n. spp.
- Elaphidion fuchsii*, California, WICKHAM, p. 170, Canad. Ent. 1905; *E. mimeticum*, *niveivestitum*, Texas, SCHAEFFER, p. 132, Bull. Brooklyn Inst. i : n. spp.
- Ergates faber*, larva and pupa, pl. i, figg. 8-10, p. 39, MJÖBERG, Arkiv Zool. ii, No. 17.
- Eupogonius fulvovestitus*, Texas, SCHAEFFER, p. 134, Bull. Brooklyn Inst. i, n. sp.
- Euryptera huachucae*, Arizona, SCHAEFFER, p. 164, t. c. n. sp.
- Exocentrus polymitus*, Natal, DISTANT, p. 207, Ann. Nat. Hist. (7) xv, n. sp.
- Grammoptera ruficornis* ab. n. *holomelina*, POOL, p. 133, Ent. Rec. xvii; *G. holomelina*, a valid species, DONISTHORPE, p. 182, Ent. Rec. xvii.
- Holangus guerrysi*, Yunnan, PIC, p. 10, Mat. Long. Cah. v, 1; n. sp.
- Hoploderes*, revision, LAMEERE, pp. 361-367, Ann. Soc. ent. Belgique 1905.
- H. reticulatus*, p. 362, *laevipennis*, p. 363, *nitidior*, p. 364, *confectus*, p. 365, Madagascar, LAMEERE, t. c. n. spp.
- Hoplorana nigroscutata*, Madagascar, FAIRMAIRE, p. 137, Ann. Soc. ent. Belgique 1905, n. sp.
- Hypocephalus armatus*, habits, GOUNELLE, pp. 105-108, pl. vi, Ann. Soc. ent. France 1905.
- Icariotis politicollis*, Madagascar, FAIRMAIRE, p. 134, Ann. Soc. ent. Belgique 1905, n. sp.
- Ischnocnemis pallidus*, Lower California, SCHAEFFER, p. 132, Bull. Brooklyn Inst. i, n. sp.
- Leptostylus pini*, Arizona, SCHAEFFER, p. 165, t. c. n. sp.
- Leptura morgani*, Persia, PIC, p. 300, Bull. Mus. Paris 1905, n. sp.
- Lepturges yucca*, Arizona, p. 167, *celtis*, Texas, p. 168, SCHAEFFER, Bull. Brooklyn Inst. i, n. spp.
- Lepturgoidea* n. g. near *Liopus*, *pini* n. sp., Arizona, SCHAEFFER, p. 166, t. c.
- Lucasianus levaillanti*, characters, habits, habitat, MAYET, p. 277, Bull. Soc. ent. France 1905.
- Lypsimena tigrina*, Arizona, SKINNER, p. 291, Ent. News Philad. xvi, n. sp.
- Macrocaulus angulosus*, Madagascar, FAIRMAIRE, p. 133, Ann. Soc. ent. Belgique 1905, n. sp.
- Macrotoma villosicollis*, p. 132, *semirugosa*, p. 133, Madagascar, FAIRMAIRE, t. c. n. spp.
- Madecops inornatus*, Madagascar, FAIRMAIRE, p. 136, t. c. n. sp.
- Mallotia græca* var. *cardoriensis*, PIC, p. 47, Bull. Soc. ent. France 1905.
- Megaseum* defined, *M. 4-costatum* ♂, SHARP, p. 147, Tr. ent. Soc. London 1905.
- Neoclytus peninsularis*, Lower California, SCHAEFFER, p. 133, Bull. Brooklyn Inst. i, n. sp.

- Obrium brunneum*, food-habits, ESTIOT, p. 142, Bull. Soc. ent. France 1905.
- O. japonicum*, Japan, PIC, Mat. Long. Cah. v, 1, n. sp.
- Oncideres quercus*, Arizona, SKINNER, p. 291, Ent. News. Philad. xvi, n. sp.
- Oxymirus cursor* var. n. *subvittatus*, REITTER, p. 206, Wien. ent. Zeit. xxiv; *O. cursor* var. n. *nigrinus*, REITTER, p. 250, t. c.
- Parmena balteus* and *unifusciata*, synonymy, VON HEYDEN, pp. 25–28, Wien. ent. Zeit. xxiv.
- Parozodes aurivillii*, Goyaz, GOUNELLE, p. 295, cut, Bull. Soc. ent. France 1905, n. sp.
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- Pilemia wawerkanai*, Akbès, REITTER, p. 240, Wien. ent. Zeit. xxiv, n. sp.
- Plagionotus bobelayei* var. n. *mouzafferi*, PIC, p. 114, Echange xxi.
- Plectrogaster jordani*, Gold Coast, HEATH, p. 76, fig. 3, Entomologist 1905, n. sp.
- Pogonocherus negundo*, Arizona, SCHAEFFER, p. 164, Bull. Brooklyn Mus. n. sp.
- Polyarthron minutum*, Persia, PIC, p. 300, Bull. Mus. Paris 1905, n. sp.
- Prionus laticollis*, number of eggs, LAURENT, p. 62, Ent. News Philad. xvi.
- P. areschanus*, Caucasus, FAIRMAIRE, p. 79, Bull. Soc. ent. France 1905; *P. heros*, Arizona, FALL, p. 274, Canad. Ent. 1905 : n. spp.
- Prosopocera biplagiata*, Angola, HEATH, p. 75, fig. 3, Entomologist 1905; *P. rothschildi*, Angola, HEATH, p. 98, fig. 2, t. c. : n. spp.
- Psyrassa texana*, Brownsville, SCHAEFFER, p. 160, Bull. Brooklyn Inst. i, n. sp.
- Purpuricenus dalmatinus* var. n. *apicalis*, PIC, p. 163, Echange xxi.
- P. robusticollis*, Persia, PIC, p. 9, Mat. Long. Cah. v, 2, n. sp.
- Rhagium bifasciatum*, larva, SHARP, p. 163, pl. ix, fig. 9, Tr. ent. Soc. London 1905.
- Rhopalophora angustata*, Texas, SCHAEFFER, p. 162, Bull. Brooklyn Inst. i, n. sp.
- Romaleum niveitinctum*, Arizona, SCHAEFFER, p. 160, t. c. n. sp.
- Rosalia alpina*, variation in Sicily, FIORI, p. 7, Natural. Sicil. xviii; *R. alpina*, food-trees, GERMAIN, p. 188, Feuille Natural. xxxv.
- Semanotus russicus algirica* subsp. n., PIC, Echange xxi.
- Soridus griseus*, Natal, DISTANT, p. 206, Ann. Nat. Hist. (7) xv, n. sp.
- Spondylus buprestoides*, natural history, pp. 37–44, cut, MJÖBERG, Arkiv Zool. ii, No. 17.
- Stenopterus ater* var. n. *subhumeralis*, PIC, p. 156, Echange xxi.
- Stenosphenus beyeri*, Arizona, SCHAEFFER, p. 163, Bull. Brooklyn Inst. i, n. sp.
- Strangalia erinnyis* Dan., PIC, p. 127, Echange xxi.
- Tambusa* n. g. *Acmoceridaria*, *marleyi* n. sp., Natal, DISTANT, p. 205, Ann. Nat. Hist. (7) xv.
- Tetropiopsis guldei*, Algeria, CHOBAUT, p. 157, Bull. Soc. ent. France 1905, n. sp.
- Tetropium gabrieli*, Centr. Europe, WEISE, p. 136, Deutsche ent. Zeitschr. 1905, n. sp.; *T. gabrieli* noticed, SHARP, Ent. Mag. 1905, pp. 273, 274; *T. crawshayi*, p. 271, *parcum*, p. 272, England, SHARP, Ent. Mag. 1905, n. spp.
- Thaumasius gigas*, habits, RODRIGUEZ, p. 185, Bull. Soc. ent. France 1905.
- Tragocephala luctifera*; Madagascar, FAIRMAIRE, p. 135, Ann. Soc. ent. Belgique 1905, n. sp.
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X. multinotatus, Yunnan, PIC, p. 11, Mat. Long. Cah. v, 1; *X. quercus*, Arizona, SCHAEFFER, p. 163, Bull. Brooklyn Inst. i : n. spp.
Zographus lanei, Angola, HEATH, p. 74, fig. 1, Entomologist 1905, n. sp.

BRUCHIDÆ.

[Cf. PIC (1187), SCHILSKY (1331).]

SCHILSKY, in Heft. 41, Käf. Eur. tabulates 100 spp. palæarctic *Bruchidæ*.

Acanthocelides n. g. for *Bruchus mimosæ* etc., SCHILSKY, Käf. Eur. 41c.

Bruchidius n. g., 41n, for a large part of *Bruchus angustifrons*, Egypt, 52, *ganglbaueri*, Centr. and S. Eur., 78, *sahlbergi*, Egypt, 94, n. spp., SCHILSKY, t. c.

Bruchus not *Laria* to be used ; value of Geoffroy's name ; the question of opportunism, GANGLBAUER, Munchen. Kol. Zeitschr. iii; *B.* n. sp. from gall on Duvana, Chile, KIEFFER & PABLO, Zeitschr. Insbiol. i, p. 66.

Kytorhinus reitteri, Mongolia, SCHILSKY, Käf. Eur. 41, p. 21, n. sp.

Laria beauprei, Egypt, PIC, p. 122, Echange xxi, n. sp.

Mylabris, *Bruchus* and *Laria*, nomenclatorial, SCHILSKY, Käf. Eur. Heft. 41a-c.

CHYSOMELIDÆ [except *Hispidæ* and *Cassididae*].

[Cf. BRIGGS (191), CLAVAREAU (322), JACOBY (810, 811), JACOBY & CLAVAREAU (812, 813), KNAB (870), McCracken (1019), PIC (1171, 1184, 1187, 1189, 1191), REITTER (1246, 1254), SCHAEFFER (1323, 1324), WEISE (1596-1598, 1606, 1612).]

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Antonaria n. g. type *Pæcilocormpha murina* Westw., JACOBY & CLAVAREAU, p. 8, Gen. Ins. fasc. xxxiii.

A. femorata, Congo, CLAVAREAU, p. 111, Ann. Soc. ent. Belgique 1905, n. sp.

Apteropeda orbiculata, food-plant, NEWBERY, p. 210, Ent. Mag. 1905.

Asbecesta lata, Cameroons, WEISE, p. 80, Deutsche ent. Zeitschr. 1905; *A. sobrina*, Rhodesia, WEISE, p. 330, t. c. : n. spp.

Atelectura schultzei, Yola, WEISE, p. 77, t. c. n. sp.

Aulacophora scutellata Baly, to *Prosmidia*, WEISE, p. 45, t. c.

Bacteriaspis n. g.? for *Aulacophora scutellata* Baly, WEISE, p. 328, t. c.

Barticaria n. g. for *Megalopus cœruleus* Jac., JACOBY & CLAVAREAU, p. 13, Gen. Ins. fasc. xxxii.

Blepharida rudeli, E. Africa, WEISE, p. 41, Deutsche ent. Zeitschr. 1905, n. sp.

Bradyplema robusta = (*pallida*, *rufoadumbrata* and *constricticollis* Clark, and *transvaalensis* Jac.), WEISE, p. 322, t. c.

Cerophysa siamensis, Malay States, JACOBY, p. v, Fascic. Malay. App. ii, n. sp.

Chlamys plicata, natural history, cases, BRIGGS, Cold Spring Mon. iv, 12 pp., 1 pl.

Chrysomela sanguineocincta, Sinai, Crotch 1871, n. sp. but not yet recorded, SHARP, p. 520, Ann. Nat. Hist. (7), xv.

Clytra militaris, characters, WEISE, p. 77, Deutsche ent. Zeitschr. 1905.

C. trægaardhi, White Nile, WEISE, p. 18, Jägerskiöld exp. No. 10a, n. sp.

- Colaspoides annandalei*, p. iii, *siamensis*, p. iv, Malay States, JACOBY, Fasc. Malay. App. ii, n. spp.
- Colasposoma erili*, p. 37, *posticum*, *geniculatum*, p. 39, *concinnum*, p. 40, Trop. Africa, WEISE, Deutsche ent. Zeitschr. 1905, n. spp.
- Coptocephala aeneopicta* var. n. *bistrijuncta*, PIC, p. 156, Echange xxi; *C. gebleri* var. n. *inundata*, REITTER, p. 251, Wien. ent. Zeit. xxiv.
- C. flavolimbata*, Algeria, PIC, p. 122, Echange xxi, n. sp.
- Coscinoptera tibialis*, Lower California, SCHAEFFER, p. 135, Bull. Brooklyn Inst. i, n. sp.
- Crepidoderus ceruleicollis* and *sabauda*, PIC, p. 110, Echange xxi; *C. cyanescens* var. *inconcolor*, PIC, p. 99, t. c.; *C. cyanipennis* and allies, PIC, pp. 17–21, Miscell. ent. xiii; *C. cyanescens inconcolor*, PIC, dubious, HEYDEN, p. 96, Wien. ent. Zeit. xxiv; *C. inconcolor*, note, PIC, p. 275, Wien. ent. Zeit. xxiv; *C. rhætica* var. n. *spectabilis*, CARRET, p. 17, Riv. Col. Ital. iii.
- Crioceris asparagi*, variation, SCHUSTER, pp. 211–214, Zool. Garten xlvi.
- Cryptocephalus bilineatus* var. *armeniacus*=(*partitus* Jac.), WEISE, p. 58, Deutsche ent. Zeitschr. 1905; *C. oranensis* varr. n. *discolugubris*, p. 95, *semiinterrupta*, p. 96, PIC, Miscell. ent. xiii; *C. rugicollis* var. n. *perroudi*, PIC, p. 107, Echange xxi; *C. quadripunctatus* var. n. *arvernica*, PIC, p. 163, t. c.; *C. bimaculatus* and *infirmior* distinguished, MOLLANDIN, p. 96, Bull. Soc. ent. France 1905.
- C. septimanicensis*, Aigues-Mortes, PIC, p. 163, Echange xxi; *C. mekalianus*, *cisti*, *juniperi*, Algeria, PIC, p. 147, t. c.; *C. rudeli*, p. 35, *conviva*, p. 36, Trop. Africa, WEISE, Deutsche ent. Zeitschr. 1905; *C. insons*, Yola, WEISE, p. 79, t. c.; *C. crenatostriatus*, Lower California, SCHAEFFER, p. 137, Bull. Brooklyn Inst. i : n. spp.
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- Diapromorpha*, species tabulated, WEISE, pp. 324–327, Deutsche ent. Zeitschr. 1905.
- Dibolia cynoglossi*, food-plant, DONISTHORPE, p. 256, Ent. Mag. 1905.
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X. utahensis, Utah, COCKERELL, p. 182, P. Soc. Washington xviii; *X. davidsoni*, Los Angeles, COCKERELL, p. 28, Bull. S. Calif. Ac. iv : n. spp.
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DIPLOPTERA (VESPIDÆ, EUMENIDÆ, MASARIDÆ).

[Cf. ASHMEAD (31, 34), AURIVILLIUS (43), BORDAS (143), BRAUNS (173), DU BUYSSEN (229–233), CAMERON (244, 251, 252, 261, 263, 264, 266, 269, 273, 275), DUCKE (461, 462), ENTEMAN (518), FREKE (598), HARTMAN (728), IHERING (800), KOHL (875), LALOY (909), MARSHALL & DERNEHL (1012), PECKHAM (1143), PÉREZ (1146), SAUNDERS (1321), SCHULZ (1359, 1361).]

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rubronotatus, p. 85, Japan, PÉREZ, Bull. Mus. Paris 1905; *E. (Pachymenes) orellanae*, p. 106, *E. (Omicron) foxi*, p. 109, Amazons, SCHULZ,

Hymen.-Stud.; *E. nicaraguensis*, Chinandega, CAMERON, p. 104, Invert. pacif. i: n. spp.

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- Synoeca surinama*, nest, SCHULZ, p. 124, Hymen.-Stud.
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HYMENOPTERA FOSSORIA (or SPHEGOIDEA).

[Cf. ANDRÉ (24, 25, 27), ASHMEAD (31, 32), AURIVILLIUS (43), BAKER (65, 66), CAMERON (241, 242, 243, 244, 246, 251, 261, 262, 263, 264, 266, 269, 272, 273, 274), FERTON (558), GARCIA (639–642), HARTMAN (728), KOHL (874–876), PECKHAM (1143), PÉREZ (1146), SCHULZ (1359).]

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- Apterogyna bimaculata* var. n. *rufescens*, GARCIA, p. 488, Bol. Soc. espan. v.
- A. mocsaryi*, Egypt, ANDRE, p. 202, Zeitschr. Hym. Dipt. v, n. sp.
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- Ephuta chinandegae*, Nicaragua, CAMERON, p. 100, Invert. pacif. i, n. sp.
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- Gorytes africanus*, Tangier, GARCÍA, p. 464, Bol. Soc. espan. v, n. sp.
- Heliocausus dubius*, Chile, KOHL, p. 362, Verh. Ges. Wien 1905, n. sp.
- Holcorhopalum* n. g. near *Rhopalum*, *soveatum* n. sp., Mexico, CAMERON, p. 264, Tr. Amer. ent. Soc. xxx.
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- Mutilla rufipes* var. n. *dusmeti*, *M. littoralis* var. n. *socoonusca*, GARCÍA, p. 494, Bol. Soc. espan. v; *M. urania* var. = (*buddha* Cam.), CAMERON, p. 51, Tijdschr. Ent. xlvi.
- M. nuptura*, Escorial, p. 490, *matritensis*, p. 493, GARCÍA, Bol. Soc. espan. v; *M. transvaalensis*, p. 24, *arcuaticeps*, p. 25, Transvaal, ANDRÉ, Bull. Soc. ent. France 1905; *M. minor*, p. 206, *katonai*, p. 207, *ukamiensis*, p. 208, Africa, *ditissima*, p. 209, *pulcherrima*, p. 210, Madagascar, *pekiniana*, China, p. 214, *celebensis*, Celebes, p. 215, ANDRÉ, Zeitschr. Hym. Dipt. v; *M. javanica*, p. 48, *melmora*, p. 49, Java, *lodina*, Borneo, p. 50, CAMERON, Tijdschr. Ent. xlvi : n. spp.
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- Myzine* (*Meira*) *violaceipennis*, Cape Colony, CAMERON, p. 301, Rec. Albany Mus. i, n. sp.
- Notoglossa banksi*, Manila, ASHMEAD, p. 960, P. U. S. Mus. xxviii, n. sp.
- Notogonia rufoscapa*, Cape Colony, CAMERON, p. 321, Rec. Albany Mus. i; *N. fuscinervā*, p. 224, *aciculata, khasiana*, p. 225, *vivax, tegularis*, p. 226, *testaceicornis*, p. 227, *strenua, sulcifrons*, p. 228, Khasia hills, CAMERON, Ann. Nat. Hist. (7) xv : n. spp.
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- Oxybelus ruficaudis*, p. 208, *capensis*, p. 209, S. Africa, CAMERON, Rec. Albany Mus. i; *O. striatiscutis*, Cape Colony, CAMERON, p. 261, t. c.; *O. clandestinus*, Chile, KOHL, p. 358, Verh. Ges. Wien 1905 : n. spp.
- Parapompilus plunatus*, natural history, DAVIDSON, pp. 233, 234, Ent. News Philad. xvi; *P.*, cf. also *Clavelia*.
- Paratiphia*, to this CAMERON refers the spp. described by him as *Epomidopteron*, Invert. pacif. i, p. 105.
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- Philanthus ammochrysus*, Tunis, SCHULZ, p. 59, Hymen.-Stud., n. sp.
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- Parasitic *Hym.* reared from *Microlepidoptera*, CROMBRUGGHE, Ann. Soc. ent. Belgique 1905, p. 205.
- Parasites of *Pyralis* and *Cochylis* of the vine, FROEH, p. 64, Bull. Soc. Reims xiii.
- Parasites of *Oeceticus platensis*, short note, BRUCH, Revist. Jard. Buenos Aires (2) i, pp. 117–120.

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[Cf. ASHMEAD (31–35), BERTHOUMIEU (106), BRAUNS (176–179), BRÈTHES (187), CAMERON (240, 243, 245, 248, 250, 251, 256, 258, 260, 261–265, 269–273, 275), GRAENICHER (686), KRIEGER (895), MOCSÁRY (1055), MORLEY (1067), NORDENSTRÖM (1109), PFANKUCH (1163), ROMAN (1289), SCHMIEDEKNECHT (1334), SZÉPLIGETI (1465, 1467).]

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The stalked eggs and the ovipositor of *Rhyssa*, BUGNION, C.R. Congr. Zool. vi, pp. 511–521, plate.

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Agarenes n. g. *Joppini*, p. 152, *cariniscutis* n. sp., Borneo, p. 153, CAMERON, J. Straits Asiat. Soc. xliv.

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Allacota bruchi, metamorphosis, p. 119, cut, BRUCH, Revist. Jard. Buenos Aires (2) i.

Allocota bruchii, Argentina, BRÈTHES, p. 17, An. Mus. Buenos Aires (3) iv, n. sp.

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Apsilops nigriceps, Manila, ASHMEAD, p. 114, P. U. S. Mus. xxix, n. sp.

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Bassides, table of palaeartic, MORLEY, pp. 424–438, Tr. ent. Soc. London 1905.

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- Brachycoryphus*? *striolatus*, Capetown, CAMERON, p. 236, Rec. Albany Mus. i, n. sp.
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- Buodias rufipes*, Ceylon, CAMERON, p. 106, pl. A, fig. 12, Spolia Zeylan. iii; *B. maculipennis*, Singapore, p. 138, *rufipes*, Borneo, p. 139, CAMERON, J. Straits Asiat. Soc. xliv: n. spp.
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- Cænojoppa* n. g. *longitarsis* n. sp., Borneo, CAMERON, p. 155, J. Straits Asiat. Soc. xliv; *C. n. g.* near *Imeria*, p. 162, *longitarsis* n. sp., Borneo, p. 163, CAMERON, Ann. Nat. Hist. (7) xvi.
- Cænostoma* n. g. *Xorides*, p. 125, *filicornis* n. sp., Sarawak, p. 126, CAMERON, J. Asiat. Soc. xliv.
- Campoplex oneili*, Cape Colony, CAMERON, p. 315, Rec. Albany Mus. i; *C. simlaensis*, India, CAMERON, p. 282, Zeitschr. Hym. Dipt. v; *C. greeni*, Ceylon, CAMERON, p. 127, Spolia Zeylan. iii; *C. sumichrasti*, Mexico, CAMERON, p. 258, Tr. Amer. ent. Soc. xxx: n. spp.
- Campsocryptus brevicornis*, California, CAMERON, p. 127, Invert. pacif. i, n. sp.
- Ceratojoppa* n. g. *cornuta* n. sp., Natal, CAMERON, p. 346, Zeitschr. Hym. Dipt. v.
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- Chiodes oculatus*, Manila, ASHMEAD, p. 966, P. U. S. Mus. xxviii, n. sp.
- Chirotica balteata*, Cape Colony, CAMERON, p. 232, Zeitschr. Hym. Dipt. v, n. sp.
- Chromocryptus albomaculatus*, Manila, ASHMEAD, p. 115, P. U. S. Mus. xxix, n. sp.
- Cidaphurus nigrolineatus*, Nevada, CAMERON, p. 129, Invert. Pacif. i, n. sp.
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- Cælichneumon bilineatus*, p. 244, *C. albopilosellus*, p. 245, N. India, CAMERON, Zeitschr. Hym. Dipt. v, n. spp.
- Cænostoma* n. g. *Xoridini*, p. 171, *filicornis* n. sp., Borneo, p. 172, CAMERON, Entomologist 1905.
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- Cratichneumon rufo-femoratus*, Sikkim, CAMERON, p. 143, t. c.; *C. erythrozonus*, CAMERON, p. 105, Entomologist 1905; *C. manilæ*, Philippines, ASHMEAD, p. 113, P. U. S. Mus. xxix: n. spp.
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- Erythrojoppa nigromaculata*, Sikkim, CAMERON, p. 78, Zeitschr. Hym. Dipt. v, n. sp.
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- Idiostoma* n. g. *Cryptini*, p. 339, *flavipennis* n. sp., Cape G. H., p. 340, CAMERON, Zeitschr. Hym. Dipt. v.
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- Neleothymus?* *rufo-ornatus*, Nicaragua, CAMERON, p. 103, Invert. pacif. i, n. sp.
- Neotheronia*, KRIEGER, p. 286, recharacterises the genus and tabulates the species, the following being new; *aurata*, *micans*, *enderleini*, p. 289, *mandibularis*, *pilosa*, p. 290, *carinata*, *impressa*, *roraria*, p. 291, *veles*, *cristata*, *fossilata*, *subparallelia*, p. 292, *kohli*, *parallelia*, *angulata*, p. 293, *buccata*, *excisa*, *occipitalis*, p. 294, *terebratrix*, S. America, *hastata*, Panama, *surinamensis*, *costata*, p. 295, *sarisophora*, *radialis*, *vallata*, p. 296, *obesa*, *tricolor*, p. 297, *amphimedæna*, *tuberculata*, *mesoxantha*, p. 298, *austera*, p. 299, *kriechbaumeri*, *columbiensis*, p. 301, *marginata*, *submarginata*, p. 303, *fumosa*, p. 304, *aurulenta*, South America, *septentrionalis*, N. Carolina, p. 305, *australis*, *facialis*, p. 306, *oxyodus*, p. 307, *tenuis*, p. 333, *laticeps*, *coequata*, p. 334, *compta*, p. 337, *transversaria*, p. 338, S. America, KRIEGER, Zeitschr. Hym. Dipt. v, n. spp.
- Nesomesochorus* n. g. and subfam. n., p. 967, *oculatus* n. sp., Manila, p. 968, ASHMEAD, P. U. S. Mus. xxviii.
- Nothanomalon* n. g. *Campopleginae*, *novoguineensis* n. sp., New Guinea, SZÉPLIGETI, p. 39, Gen. ins. fasc. xxxiv.
- Nototrachus* *flavomaculatus*, Cape Colony, CAMERON, p. 250, Rec. Albany Mus. i; *N. reticulatus*, Ceylon, CAMERON, p. 128, Spolia Zeylan. iii : n. spp.
- Ophiomorpha* n. g. p. 34, *concolor*, Trop. Africa, *bicolor*, Brazil, n. spp., p. 35, SZÉPLIGETI, Gen. ins. fasc. xxxiv.
- Ophion* *sibiricus*, p. 520, *albistylus*, Siberia, *turcomanicus*, Transcaspian, p. 521, SZÉPLIGETI, Ann. Mus. Hungar. iii; *O. bicarinatus*, Ceylon, CAMERON, p. 120, Spolia Zeylan. iii : n. spp.
- Ophionidae*, the genera with lists of species, and 2 subfamm. n. *Pharsalinae*, *Xiphosominae*, SZÉPLIGETI, Gen. ins. fasc. xxxiv.
- Orona* n. g. *Porizonini*, *petiolaris* n. sp., California, CAMERON, p. 131, Invert. pacif. i.
- Oxytaria rufolineata*, Mexico, CAMERON, p. 254, Tr. Amer. ent. Soc. xxx, n. sp.
- Paipila* n. g. aberrant, p. 258, *longipes* n. sp., Mexico, p. 259, CAMERON, t. c.
- Paniscus elegans*, Tunis, SZÉPLIGETI, p. 540, Ann. Mus. Hungar. iii; *P. intermedius*, p. 125, *orientalis*, p. 126, *lavis*, p. 127, Ceylon, CAMERON, Spolia Zeylan. iii : n. spp.
- Pauropatnus* n. g. *Hemitelini annulipes* n. sp., S. Africa, CAMERON, p. 342, Zeitschr. Hym. Dipt. v.
- Pezomachus silvestrii*, Portici, ASHMEAD, p. 142, Canad. Ent. 1905, n. sp.
- Phalega* n. g. *Acanthini*, *lutea* n. sp., Borneo, CAMERON, p. 170, Entomologist 1905.
- Phalgea* n. g. near *Arotès*, p. 130, *lutea* n. sp., Borneo, p. 131, CAMERON, J. Straits Asiatic Soc. xliv.
- Pharzites* n. g. near *Lactolus*, p. 137, *nigritarsis* n. sp., Borneo, p. 138, CAMERON, t. c.
- Philopsycus* n. g. *Pimplinæ*, p. 137, *albopalteata* n. sp., Ceylon, pl. b, fig. 10, p. 138, CAMERON, Spolia Zeylan. iii.
- Phobetes bruchii*, La Plata, BRÈTHES, p. 21, An. Mus. Buenos Aires (3) iv, n. sp.
- Phthorimus anomalus*, England, MORLEY, p. 420, Tr. ent. Soc. London 1905, n. sp.
- Phygadeuon serotinus*, p. 691, *nubilipennis*, p. 696, *autumnalis*, p. 699, *rufovarius*, p. 700, *bischoffi*, p. 701, *alteareolatus*, p. 704, Thuringia,

- tergestinus*, Triest, p. 707, *lehmanni*, p. 708, *nobilitatus*, p. 716, *connectens*, p. 721, Thuringia, SCHMIEDEKNECHT, Opusc. ent. ii, n. spp.
Pimpla heliophila, Transvaal, CAMERON, p. 343, Zeitschr. Hym. Dipt. v :
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Plectocryptus mephisto, Germany, p. 597, *antennalis*, p. 598, *hilarulus*, p. 599, Thuringia, SCHMIEDEKNECHT, Opusc. ent. ii, n. spp.
Pleuroneurophorus erythrocerus, Ceylon, CAMERON, p. 121, Spolia Zeylan. iii, n. sp.; *P. malayanus*, p. 122, Borneo, *grandis*, Himalaya, p. 123, CAMERON, J. Straits Asiat. Soc. xliv, n. spp.
Porizon vierecki, characters, COCKERELL, p. 362, Canad. Ent. 1905.
Pristocelus n. g. near *Pristomerus*, *atriceps* n. sp., New Guinea, SZÉPLIGETI, p. 48, Gen. ins. fasc. xxxiv.
Pristomeridia ? *microdonta*, Nicaragua, CAMERON, p. 46, Invert. pacif. i; n. sp.
Prometheus dodsi, England, MORLEY, p. 421, Tr. ent. Soc. London 1905, n. sp.
Pseudamblyteles ? *erythropus*, S. Africa, CAMERON, p. 230, Rec. Albany Mus. i, n. sp.
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Pyramirhyssa n. g. near *Rhyssa*, *magnifica* n. sp., Brazil, MOCSÁRY, p. 15, Ann. Mus. Hungar. iii.
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Rhynchoscryptus n. g. p. 338, *violaceipennis*, p. 339, n. sp., Cape G. H., CAMERON, Zeitschr. Hym. Dipt. v.
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Scopesis flavolineatus, Mexico, CAMERON, p. 254, Tr. Amer. ent. Soc. xxx, n. sp.
Silsila apicimaculata, Borneo, CAMERON, p. 131, J. Straits Asiat. Soc. xliv, n. sp.
Siphimedia iridicolor, Kuching, CAMERON, p. 130, t. c. n. sp.
Skeatia acutilineata, pl. A, fig. 12, p. 113, *cyclospiae*, p. 114, *panthonæ*, p. 115, Ceylon, CAMERON, Spolia Zeylan. iii; *S. balteata*, Singapore, CAMERON, p. 143, J. Straits Asiat. Soc. xliv; *S. javanica*, Java, CAMERON, p. 35, Tijdschr. Ent. xlviii : n. spp.
Spanophatnus n. g. near *Platylabris*, p. 230, *ruficeps* n. sp., Grahamstown, p. 231, CAMERON, Rec. Albany Mus. i.
Spilichneumon darjeelingensis, Sikkim, CAMERON, p. 87, Zeitschr. Hym. Dipt. v; *S. annulicornis*, p. 85, *coxalis*, p. 105, Simla, CAMERON, Entomologist 1905 : n. spp.
Spilophion n. g. *Ophioninae*, p. 124, *maculipennis* n. sp., Ceylon, pl. B, fig. 13, p. 125, CAMERON, Spolia Zeylan. iii.
Spiloxorides erythrocephalus, Borneo, CAMERON, p. 166, Ann. Nat. Hist. (7) xvi; *S. erythrocephalus*, Borneo, CAMERON, p. 126, J. Straits Asiat. Soc. xliv : n. sp.
Stenichneumon ? *aethiopicus*, S. Africa, CAMERON, p. 229, Rec. Albany Mus. i, n. sp.
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- Stilbops limneriaeformis*, ♂, PFANKUCH, p. 141, Abh. Ver. Bremen xviii.
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Stylocryptus tyrolensis, Innsbruck, p. 662, *coxalis*, Thuringia, p. 663,
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Suvalta spinifrons, Sikkim, CAMERON, p. 143, Zeitschr. Hym. Dipt. v,
 n. sp.
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Theronia maskeliæ, Ceylon, CAMERON, p. 133, Spolia Zeylan. iii, n. sp.
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Xanthopimpla taprobanica, p. 135, *kandyensis*, *parva*, p. 136, *minuta*,
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pennis, Sarawak, CAMERON, p. 119, J. Straits Asiat. Soc. xliv; *X.*
maculiceps, Java, CAMERON, p. 37, Tijdschr. Ent. xlviii; *X. kriegeri*,
 Manila, ASHMEAD, p. 411, P. U. S. Mus. xxix : n. spp.
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Zonocryptus fumipennis, Grahamstown, CAMERON, p. 307, Rec. Albany
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BRACONIDÆ (incl. ALYSIIDÆ).

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 258, 261, 263, 265, 267, 269, 270, 272), ENDERLEIN (498, 499, 510),
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- Actisis pleuralis*, Manila, ASHMEAD, p. 6, Canad. Ent. 1905, n. sp.
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Batotheca n. g. p. 227, *dohrniana* n. sp., Sumatra, p. 228, and incl. 3 spp.
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- Beognatha incompleta*, Singapore, SZÉPLIGETI, Ann. Mus. Hungar. iii, n. sp.
- Biosteres longicaudatus*, Manila, ASHMEAD, p. 970, P. U. S. Mus. xxviii.
- Blacus pulcher*, Singapore, SZÉPLIGETI, p. 53, Ann. Mus. Hungar. iii, n. sp.
- Bracon daphnephilæ, cecidobius*, Bengal, KIEFFER, p. 185, Ann. Soc. Bruxelles xxix; *B. singaporense*, Singapore, p. 37, *australiensis*, *bimaculatus*, p. 38, Australia, *transiens*, New Guinea, p. 39, SZÉPLIGETI, Ann. Mus. Hungar. iii; *B. vau*, Manila, ASHMEAD, p. 971, P. U. S. Mus. xxviii; *B. algaei*, Manila, ASHMEAD, p. 119, op. cit. xxix; *B. managuae, chinandegensis*, p. 46, *nicaraguensis*, *bakeri*, p. 47, Nicaragua, *caroli, longicaudis*, p. 48, Guatemala, CAMERON, Invert. pacif. i : n. spp.
- Braunia antennalis*, Sierra Leone, SZÉPLIGETI, p. 52, Ann. Mus. Hungar. iii; *B. similis*, Cameroons, SZÉPLIGETI, p. 11, Arkiv Zool. ii, No. 14 : n. spp.
- Brownius* n. g. *Eurobraconini*, p. 7, *armatus* n. sp., Manila, p. 8, including also pt. of *Spinaria*, ASHMEAD, Canad. Ent. 1905.
- Cardiochiles philippensis*, Manila, ASHMEAD, p. 118, P. U. S. Mus. xxix, n. sp.
- Cendebus* n. g. *Exothecini*, p. 105, *filicornis* n. sp., Sarawak, p. 106, CAMERON, J. Straits Asiat. Soc. xliv.
- Cenostomus trichiosomus*, Mexico, CAMERON, p. 387, Tr. Amer. ent. Soc. xxxi, n. sp.
- Chaolita ruficeps*, p. 101, *lutea*, p. 202, Borneo, CAMERON, J. Straits Asiat. Soc. xliv; *C. tuberculata*, p. 40, *crassicauda*, p. 41, Borneo, CAMERON, Tijdschr. Ent. xlviii; *C. trituberculata*, p. 49, *sulcata*, *maculifrons*, p. 50, Sarawak, CAMERON, J. Straits Asiat. Soc. xlvi : n. spp.
- Chelonus tricoloratus*, Trincomalee, CAMERON, p. 79, Spolia Zeylan. iii; *C. albicinctus*, Manila, ASHMEAD, p. 968, P. U. S. Mus. xxviii; *C. similis*, p. 44, *unimaculatus*, *coriaceus*, p. 45, *australiensis*, p. 46, N. S. Wales, SZÉPLIGETI, Ann. Mus. Hungar. iii; *C. clavinermis*, Mexico, CAMERON, p. 261, Tr. Amer. ent. Soc. xxx; *C. immaculatus, centralis*, Nicaragua, CAMERON, p. 49, Invert. pacif. i : n. spp.
- Cratospila longicornis*, Singapore, SZÉPLIGETI, p. 55, Ann. Mus. Hungar. iii, n. sp.
- Cremnops pulchripennis*, Cameroons, SZÉPLIGETI, p. 10, Arkiv Zool. ii, No. 14; *C. bispinosa*, Singapore, *africana*, Cameroons, SZÉPLIGETI, Ann. Mus. Hungar. iii : n. spp.
- Diospilus ruficeps*, N. S. Wales, SZÉPLIGETI, t. c. n. sp.
- Disophrys ornatipennis*, p. 112, *niger*, p. 113, *fumipennis*, p. 114, Borneo, CAMERON, J. Straits Asiat. Soc. xliv, n. spp.
- Edyia* n. g. near *Euscelinus*, p. 159, *annulicornis* n. sp., Borneo, p. 160, CAMERON, Ann. Nat. Hist. (7) xvi; *Edyia* n. g. p. 108, *annulicornis* n. sp., Sarawak, p. 109, CAMERON, J. Straits Asiat. Soc. xliv.
- Enagathis erythrocephala*, p. 110, *creophora*, p. 111, Borneo, CAMERON, t. c. n. spp.
- Ernestiella* n. g. *Cardiochilinae, nigromaculata* n. sp., Ceylon, CAMERON, p. 81, Spolia Zeylan. iii.
- Euaugatis albotarsus*, Cameroons, SZÉPLIGETI, p. 10, Arkiv Zool. ii, No. 14, n. sp.
- Euphorilla testaceipes*, Mexico, CAMERON, p. 261, Tr. Amer. ent. Soc. xxx, n. sp.
- Fornicia annulipes*, Manila, ASHMEAD, p. 7, Canad. Ent. 1905, n. sp.
- Forsteria ? ruficollis*, Nicaragua, CAMERON, p. 48, Invert. pacif. i, n. sp.
- Gastrotheca capra*, Mombasa, p. 234, *capensis*, S. Africa, p. 235, *sumatrana*, Sumatra, p. 236, ENDERLEIN, Stettin Ent. Zeit. lxvi, n. spp.
- Goniarcha malayensis*, Manila, ASHMEAD, p. 411, P. U. S. Mus. xxix, n. sp.

- Habnoba* n. g. *Spathiinae*, *petiolata* n. sp., Sarawak, CAMERON, p. 108, J. Straits Asiat. Soc. xliv.
- Hecabolus rubrocinctus*, Manila, ASHMEAD, p. 8, Canad. Ent. 1905, n. sp.
- Hemignyptus* n. g. near *Glyptomorpha*, p. 412, *flavus* n. sp., Manila, p. 413, ASHMEAD, P. U. S. Mus. xxix.
- Holcalystia* n. g. near *Phænacarpa*, p. 268, *testaceipes* n. sp., Cape Colony, p. 269, CAMERON, Entomologist 1905.
- Holcapanteles* n. g. near *Urogaster*, p. 43, *sulciscutis* n. sp., Java, p. 44, CAMERON, Tijdschr. Ent. xlvi.
- Holcobracon* n. g. p. 89, *fulvus* n. sp., p. 90, pl. A, fig. 6, Ceylon, CAMERON, Spolia Zeylan. iii.
- Homiopterus pacificus*, Manila, ASHMEAD, p. 412, P. U. S. Mus. xxix, n. sp.
- Iphiaulax dypeolus* n. n. for *apricans* Szépl. (Ann. Mus. Hungar. ii, p. 181), SZÉPLIGETI, p. 26, Ann. Mus. Hungar. iii.
- I. longiseta*, p. 3, *consultus*, p. 5, *cristatus*, p. 6, *deliberator*, p. 7, *posessor*, *annulicornis*, *annelatus*, p. 8, Cameroons, SZÉPLIGETI, Arkiv Zool. ii, No. 14; *I. trimeni*, p. 240, *spilopus*, *I. platynotus*, p. 241, S. Africa, CAMERON, Rec. Albany Mus. i; *I. ornaticollis*, Grahams-town, CAMERON, p. 252, t. c.; *I. elizeus*, *smenus*, Deesa, CAMERON, p. 107, Entomologist 1905; *I. xanthopsis*, p. 82, *fulvopilosus*, *greeni*, p. 83, *ernesti*, p. 84, *erythroura*, p. 85, pl. A, fig. 7, *haragamensis*, p. 86, Ceylon, CAMERON, Spolia Zeylan. iii; *I. lateritius*, Palembang, CAMERON, p. 39, Tijdschr. Ent. xlvi; *I. megapterus*, p. 23, *spilogaster*, p. 24, *minos*, p. 25, *soranus*, p. 26, *ezerias*, p. 27, *cyreni*, p. 28, *zaraces*, p. 29, *thespis*, p. 30, *amyrus*, p. 31, *sibaniensis*, *cilles*, p. 32, *tenuilineatus*, p. 33, *paternus*, p. 34, *smenus*, p. 35, *pheres*, p. 36, *aeneus* (see op. cit. xliv, p. 229), p. 37, *mobilis*, p. 38, *longitarsis*, p. 39, *nitidiusculus*, p. 40 and xliv, p. 229, *pangaeus*, p. 41, *monticola*, p. 42, *quæsitorius*, p. 43, *trichothecus*, p. 44, *abgarus*, *tristutor*, p. 45, *pampatensis*, p. 46, *leptogaster*, p. 47, *ornaticornis*, p. 48, Sarawak, CAMERON, J. Straits Asiat. Soc. xlvi; *I. longiseta*, *bifasciatus*, p. 28, *bisignatus*, *camerunensis*, *afer*, p. 29, *pulchricaudis*, *cristatus*, p. 30, *scoparius*, *speciosissimus*, *trifasciatus*, p. 31, *perspicax*, *longicornis*, p. 32, *australiensis*, *semirufus*, *ruficeps*, p. 33, *crenulatus*, p. 34, *micans*, *bipartitus*, p. 35, Australia, *palpalis*, New Guinea, p. 34, *genalis*, Bismarck Arch., *pretiosus*, Australia, p. 36, SZÉPLIGETI, Ann. Mus. Hungar. iii; *I. mammivaenensis*, p. 380, *jutahaeensis*, p. 381, *trailii*, *schrottkyi*, *javaryensis*, p. 382, *harperi*, *watertoni*, p. 383, S. America, *mathevi*, *occidentalis*, p. 384, Mexico, CAMERON, Tr. Amer. ent. Soc. xxxi; *I. tornowii*, Tucumán, BRÈTHES, p. 334, An. Mus. Buenos Aires (3) iv : n. spp.
- Kareba* n. g. *flavipes*, Mexico, p. 50, *testacea*, Guatemala, p. 51, n. spp., CAMERON, Invert. pacif. i.
- Lathrolestes dilatatus* (Thoms. in coll.), Sweden, NORDENSTRÖM, p. 207, Ent. Tidskr. xxvi, n. sp.
- Lissobracon* n. g. *Braconinæ*, *forticornis* n. sp., Sarawak, CAMERON, p. 103, J. Straits Asiat. Soc. xliv.
- Mesostoma* n. g. p. 42, *testaceipes* n. sp., Java, p. 43, CAMERON, Tijdschr. Ent. xlvi.
- Meteorus trilineatus*, Grahamstown, CAMERON, p. 342, Rec. Albany Mus. i; *M. brownii*, Manila, ASHMEAD, p. 968, P. U. S. Mus. xxviii; *M. bicolor*, N. S. Wales, SZÉPLIGETI, p. 53, Ann. Mus. Hungar. iii : n. spp.
- Microbracon luteiceps*, Manila, ASHMEAD, p. 412, P. U. S. Mus. xxix, n. sp.
- Microdus greeni*, Ceylon, CAMERON, p. 79, Spolia Zeylan. iii; *M. matangensis*, Matang, CAMERON, p. 115, J. Straits Asiat. Soc. xliv; *M. pedunculatus*, N. S. Wales, SZÉPLIGETI, p. 51, Ann. Mus. Hungar. iii; *M. trochanteratus*, Nicaragua, Cameron, p. 50, Invert. pacif. i : n. spp.
- Microgaster petiolaris*, p. 48, *tegularis*, p. 49, N. S. Wales, SZÉPLIGETI, Ann.

- Mus. Hungar. iii; *M. carinicollis*, Ceylon, CAMERON, p. 81, Spolia Zeylan. iii.
- Microplitis philippensis*, habits, BROWN, p. 357, Canad. Ent. 1905.
- Mimagathis* n. g. *Mimagathinae* subfam. n., *ashmeadi*, p. 460, *peruana*, *iuku*, p. 451, n. spp., S. America, ENDERLEIN, Zool. Anz. xxviii.
- Neotrimorus*? *luteus*, Borneo, CAMERON, p. 161, Ann. Nat. Hist. (7) xvi, n. sp.
- Opius albimanus*, N. S. Wales, SZÉPLIGETI, p. 54, Ann. Mus. Hungar. iii; *O. forticornis*, *iridipennis*, Nicaragua, CAMERON, p. 51, Invert. pacif. i : n. spp.
- Paraspinaria* n. g. *Rhogadinae pilosa* n. sp., Ceylon, CAMERON, p. 88, pl. A, fig. 9, Spolia Zeylan. iii.
- Phænacarpa*? *testaceipes*, Cape G. H., CAMERON, p. 343, Zeitschr. Hym. Dipt. v, n. sp.
- Phanerotoma hendecasisella*, Ceylon, CAMERON, p. 80, Spolia Zeylan. iii; *P. albiscapa*, Manila, ASHMEAD, p. 969, P. U. S. Mus. xviii; *P. nigroscutis*, Nicaragua, CAMERON, p. 49, Invert. pacif. i : n. spp.
- Philomacroplex* n. g. *Braconinae*, *basimacula* n. sp., Ceylon, CAMERON, p. 88, Spolia Zeylan. iii.
- Plaxopsis* n. g. *Braconinae*, *sjostedti* n. sp., Cameroons, SZÉPLIGETI, p. 1, Arkiv Zool. ii, No. 14.
- Pseudapanteles agilis*, Manila, ASHMEAD, p. 969, P. U. S. Mus. xxviii, n. sp.
- Pseudospinaria* n. g. for *Spin. attenuata* Westw., ENDERLEIN, p. 229, Stettin Ent. Zeit. lxvi.
- Rhacospathius* n. g. near *Spathius*, *striolatus* n. sp., Ceylon, CAMERON, p. 86, Spolia Zeylan. iii.
- Rhamnura* n. g. near *Iphiaulax*, *filicauda*, p. 195, *crinicauda*, *capillicauda*, p. 196, *seticauda*, p. 197, *tenuicornis*, p. 198, n. spp., W. Africa, ENDERLEIN, Zool. Anz. xxiv.
- Rhogas capensis*, S. Africa, CAMERON, p. 243, Rec. Albany Mus. i; *R. melanosoma*, Manila, ASHMEAD, p. 970, P. U. S. Mus. xxviii; *R. oculator*, Celebes, SZÉPLIGETI, p. 43, Ann. Mus. Hungar. iii; *R. aztecus*, Mexico, CAMERON, p. 385, Tr. Amer. ent. Soc. xxxi : n. spp.
- Rhyssalus unicolor*, Manila, ASHMEAD, p. 970, P. U. S. Mus. xxviii, n. sp.
- Rhyssosigalpus* n. g. *Sigalpinæ*, *R. rugosus* n. sp., Mexico, CAMERON, p. 260, Tr. Amer. ent. Soc. xxx.
- Sigalpus tripartitus*, Sydney, SZÉPLIGETI, p. 43, Ann. Mus. Hungar. iii, n. sp.
- Spathius fuscipennis*, Manila, ASHMEAD, p. 119, P. U. S. Mus. xxix; *S. antennalis*, p. 40, *albiventris*, *variipes*, p. 41, *fulvus*, p. 42, New Guinea, SZÉPLIGETI, Ann. Mus. Hungar. iii : n. spp.
- Spinaria curvispina* varr. n. *nigricanda*, *udei*, ENDERLEIN, p. 232, Stettin Ent. Zeit. lxvi.
- S. philippensis*, p. 230, *luzonensis*, p. 231, Philippines, ENDERLEIN, t. c. n. spp.
- Stantonia conspurcata*, Siam, p. 453, *kriegeri*, Columbia, p. 454, ENDERLEIN, Zool. Anz. xxviii, n. spp.
- Trichiobracon* n. g. near *Spinaria*, p. 104, *pilosus* n. sp., Borneo, p. 105, CAMERON, J. Straits Asiat. Soc. xliv; *T.*, characters of Bornean, CAMERON, p. 161, Ann. Nat. Hist. (7) xvi.
- Tropobracon* n. g. *luteus* n. sp., Ceylon, CAMERON, p. 91, Spolia Zeylan. iii.
- Troporhogas* n. g. p. 92, *spilonotus*, *albipes*, p. 93, *maculipennis*, pl. A, fig. 5, *tricolor*, pl. A, fig. 8, p. 94, *ruficeps*, *lateralis*, p. 95, *trimaculata*, p. 96, n. spp., Ceylon, CAMERON, t. c.
- Urogaster albinervis*, Mexico, CAMERON, p. 261, Tr. Amer. ent. Soc. xxx, n. sp.

EVANIIDÆ and ROPRONIIDÆ.

[Cf. BRADLEY (166, 169), CAMERON (240, 247, 261, 267, 270), ENDERLEIN (502), KIEFFER (847).]

Classification and table of genera, ENDERLEIN, pp. 699, 700, Zool. Anz. xxviii.

Genera of *Evaniidæ*, BRADLEY, p. 26, Zeitschr. Hym. Dipt. v.

Corrections orthographical and taxonomic, BRADLEY, pp. 63, 64, Canad. Ent. 1905.

Brachygaster magnus, p. 712, *reticulifer*, *fraternus*, p. 713, Peru, ENDERLEIN, Zool. Anz. xxviii, n. spp.

Deraidonotus violaceus, Washington, BRADLEY, p. 26, Zeitschr. Hym. Dipt. v, n. sp.

Evania alboannulata ♂, p. 708, var. n. *tricarinulata*, p. 709, *orientalis* ♂, p. 709, ENDERLEIN, Zool. Anz. xxviii.

E. schonlandi, S. Africa, CAMERON, p. 243, Rec. Albany Mus. i; *E. interstitialis*, p. 74, *peradeniae*, p. 75, Ceylon, CAMERON, Spolia Zeylan. iii; *E. nyassica*, E. Africa, p. 702, *kriegeriana*, Borneo, p. 703, *solox*, Burma, p. 704, *sumatrensis*, p. 706, *micholitzi*, p. 707, Sumatra, *miniacea*, Peru, p. 710, ENDERLEIN, Zool. Anz. xxviii; *E. rubra*, Borneo, CAMERON, p. 100, J. Straits Asiat. Soc. xliv : n. spp.

Evaniella n. g. type *unicolor* Say, BRADLEY, p. 64, Canad. Ent. 1905.

Evaniellus n. g. pp. 701 & 714, *peruanus*, p. 714, *gracilis*, Peru, *chalcidipennis*, Bolivia, p. 715, ENDERLEIN, Zool. Anz. xxviii, n. spp.

Evaniuscus rufithorax, Peru, ENDERLEIN, p. 711, t. c. n. sp.

Gasterruption lisocephalus, Cape Colony, CAMERON, p. 227, Entomologist 1905; *G. tricoloratum*, p. 76, *ceylonicum*, p. 77, Ceylon, CAMERON, Spolia Zeylan. iii; *G. rufo-maculatum*, Borneo, CAMERON, p. 99, J. Straits Asiat. Soc. xliv; *G. nevadense*, Nevada, *pyrrhosternum*, p. 41, *rubrofasciatum*, p. 42, California, KIEFFER, Invert. pacif. i : n. spp.

Pristaulacus erythrocephalus, Borneo, CAMERON, p. 159, Ann. Nat. Hist. (7) xvi; *P. erythrocephalus*, Borneo, CAMERON, p. 98, J. Straits Asiat. Soc. xliv : n. spp.

Pseudevania n. g., type *E. marginata*, BRADLEY, p. 64, Canad. Ent. 1905. *Ropronia*, a distinct family *Roproniidæ*, BRADLEY, p. 16, Ent. News Philad. xvi.

R. ashmeadi, New York, id. p. 17, t. c. n. sp.

Semaeodogaster n. g. for *Brachygaster* Steph., BRADLEY, p. 63, Canad. Ent. 1905.

STEPHANIDÆ and MEGALYRIDÆ.

Stephanidæ, Genera and classification, ENDERLEIN, pp. 473–477, Zool. Anz. xxviii.

Diastephanus n. g. *szepligetii* n. sp., Sierra Leone, ENDERLEIN, p. 476, Zool. Anz. xxviii.

Stephanus rufo-ornatus, Queensland, CAMERON, p. 45, Tijdschr. Ent. xlviii, n. sp.

Megalyra erythropus, Queensland, CAMERON, p. 46, t. c.; *M. szepligetii*, S. Australia, BRADLEY, p. 396, Tr. ent. Soc. London 1905 : n. spp.

Parastephanus n. g. for *macrurus* Schletter. etc., ENDERLEIN, p. 475, Zool. Anz. xxviii.

TRIGONALIDÆ.

[Cf. ENDERLEIN (511), SCHULZ (1359).]

Classification of *Trigonalydæ*, with 3 subfamilies, SCHULZ, pp. 102–104, Hymen. Studien.

Discnea n. g. for *Trigonalydæ natalensis*, ENDERLEIN, p. 199, Zool. Anz. xxix.

Liaba cisandina, Brazil, SCHULZ, p. 93, Hymen. Studien. n. sp.

Orthogonalys n. g. p. 76, *boliviensis* n. sp., Bolivia, p. 81, SCHULZ, t. c.

Platygonalys n. g. p. 86, *phylogenetica* n. sp., Bolivia, p. 61, SCHULZ, t. c.

Trigonalydæ hahni, localities, distribution, and characters, SCHULZ, pp. 70–76, t. c.; *T. hahni* var. n. *pheognatha*, ENDERLEIN, p. 200, Zool. Anz. xxix.

CHALCIDIDÆ.

[Cf. ASHMEAD (31, 33, 34), BRÈTHES (187), CAMERON (254, 255, 257, 259, 262, 264, 268, 269, 270), DE STEFANI PEREZ (406, 407), FROGGATT (612), GIRAULT (663), KIEFFER (846), KÜNCHEL (905), MARCHAL (1006), MAYR (1017), MEUNIER (1036, 1040), SILVESTRI (1393), WEBSTER (1593).]

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Aphyctis albiclavatus, Manila, ASHMEAD, p. 404, P. U. S. Mus. xxix, n. sp.

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Brasema ruficollis, California, CAMERON, p. 125, Invert. pacif. i; *B. maculipennis, maculicornis*, Centr. America, CAMERON, p. 65, t. c. : n. spp.

Cœnacis grandiclava, host, FRIEDRICH, p. 494, Zeitschr. Insbiol. i.

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Chalcis spilopius, rotundata, S. Africa, CAMERON, p. 231, t. c.; *C. capensis*, p. 311, *pymi*, p. 312, S. Africa, CAMERON, Rec. Albany Mus. i; *C. bilobata*, p. 283, *marginata*, p. 284, India, CAMERON, Zeitschr. Hym. Dipt. v; *C. borneanus*, Borneo, CAMERON, p. 52, J. Straits Asiat. Soc. xlvi; *C. banksi*, Manila, ASHMEAD, p. 964, P. U. S. Mus. xxviii: n. spp.

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D. plagiotrochi, Montpellier, p. 535, *scorzoneræ*, Vienna, p. 540, MAYR, t. c. n. spp.

Dirhinus auratus, Manila, ASHMEAD, p. 402, P. U. S. Mus. xxix, n. sp.

Eudecatoma fulva, Nicaragua, CAMERON, p. 62, Invert. pacif. i, n. sp.

Eupelmus tenuicornis, p. 192, *carinatus*, p. 194, Bengal, KIEFFER, Ann. Soc. Bruxelles xxix, n. spp.

Eurycranius saissetiae, Manila, ASHMEAD, p. 405, P. U. S. Mus. xxix, n. sp.

Eurytoma striatula, Cape Colony, CAMERON, p. 345, Zeitschr. Hym.

- Dipt. v; *E. banksi, albotibialis*, Manila, ASHMEAD, p. 965, P. U. S. Mus. xxviii; *E. sulcata*, Bengal, KIEFFER, p. 192, Ann. Soc. Bruxelles xxix; *E. erythroaspis*, p. 62, *xanthopus, pilicornis*, p. 63, Centr. America, CAMERON, Invert. pacif. i : n. spp.
- Euxysoma testaceitursis*, Cape Colony, CAMERON, p. 344, Zeitschr. Hym. Dipt. v, n. sp.
- Hyperteles longicauda*, Bengal, KIEFFER, p. 195, Ann. Soc. Bruxelles xxix, n. spp.
- Hockeria melanaria*, Grahamstown, CAMERON, p. 314, Rec. Albany Mus. i, n. sp.
- Holceupelmus* n. g. near *Brasema*, p. 316, *bifasciatus* n. sp., Cape Colony, p. 317, CAMERON, t. c.
- Howardella tarsata*, Manila, ASHMEAD, p. 403, P. U. S. Mus. xxix, n. sp.
- Isosoma*; in timothy, and parasite, WEBSTER, pp. 114–116, P. ent. Soc. Washington vii.
- Lirata iridicolor*, p. 60, *fulvicornis, sulcifacies, nigriventris*, p. 61, Nicaragua, CAMERON, Invert. pacif. i, n. spp.
- Macreupelmus pulchriceps*, Nicaragua, CAMERON, t. c. n. sp.
- Megacolus fulvipennis*, p. 96, *rufitarsis, striolatus*, p. 97, Sarawak, CAMERON, J. Straits Asiat. Soc. xliv, n. spp.
- Megastigmus immaculatus*, Manila, ASHMEAD, p. 401, P. U. S. Mus. xxix; *M. brachyctoni*, Australia, FROGGATT, p. 233, fig. 4, Agric. Gaz. N. S. W. xvi: *M. fulvus*, Nicaragua, CAMERON, p. 58, Invert. pacif. i : n. spp.
- Mesidia minuta*, Zanzibar copal, MEUNIER, p. 214, Rev. Sci. Bourbonnais 1905, n. sp.
- Microcetus* n. g. *formidolosus* n. sp., Madagascar in copal, MEUNIER, p. 93, Miscell. ent. xiii.
- Monodontomerus phormio*, the parasitic habits, KÜNCKEL, p. 227, Bull. Mus. Paris 1905.
- Nesolynx* n. g. *Elachertini, flavipes* n. sp., Manila, ASHMEAD, p. 966, P. U. S. Mus. xxviii; *N. flavipes*, habits, BROWN, p. 358, Canad. Ent. 1905.
- Oencyrtus papilionis*, Philippines, ASHMEAD, p. 4, Canad. Ent. 1905, n. sp.; *O. papilionis*, habits, BROWN, p. 359, t. c.
- Oncocalcis deessensis*, India, CAMERON, p. 285, Zeitschr. Hym. Dipt. v, n. sp.
- Ormocerus pallidipes*, Manila, ASHMEAD, p. 402, P. U. S. Mus. xxix, n. sp.
- Paracentrobia flavipes*, N. America, from eggs of *Anthonomus*, GIRAULT, p. 287, Ent. News Philad. xvi, n. sp.
- Parasaphes townsendi*, Manila, ASHMEAD, p. 404, P. U. S. Mus. xxix, n. sp.
- Perilampus*; tabulation and notes, MAYR, pp. 562–569, Verh. Ges. Wien 1905.
- P. tristis*, Germany, MAYR, p. 566, t. c.; *P. reticulatus, laeviceps*, p. 59, *albitarsis*, p. 60, Nicaragua, CAMERON, Invert. pacif. i : n. sp.
- Philomides flavicollis*, Gibraltar, CAMERON, p. 150, Zeitschr. Hym. Dipt. v, n. sp.
- Philotrypesis fibicola*, Philippines, ASHMEAD, p. 400, P. U. S. Mus. xxix, n. sp.
- Phasgonophora rufo-ornata*, Grahamstown, CAMERON, p. 310, Rec. Albany Mus. i, n. sp.
- Plagiosmicra* n. g. *ashmeadi* n. sp., Nicaragua, CAMERON, p. 56, Invert. pacif. i.
- Platychalcis* n. g. near *Halticella, flavicollis* n. sp., Nicaragua, CAMERON, p. 57, t. c.
- Plutothrix minutissima*, Zanzibar copal, MEUNIER, p. 215, pl. 1, fig. 13, Rev. Sci. Bourbonnais 1905, n. sp.

- Rekabia* n. g. near *Pleurotropis*, p. 65, *testaceipes* n. sp., Nicaragua, p. 66, CAMERON, Invert. pacif. i.
Sericops referred to *Eurytomides*, characters, MAYR, p. 569, Verh. Ges. Wien 1905.
Smicra bergi to *Spilochalchis*, BRÈTHES, p. 23, An. Mus. Buenos Aires (3) iv.
Spalangia; table of European, KIEFFER, p. 2, Berlin. ent. Zeitschr. 1.
S. formicaria, Luxemburg, KIEFFER, p. 1, t. c. n. sp.
Spilochalcis spilosoma, p. 53, *managuaensis*, *denticoxis*, p. 54, *segoviae*, *beltii*, *marcosensis*, p. 55, Nicaragua, CAMERON, Invert. pacif. i, n. sp.
Spilomegastigmus n. g. near *Megastigmus*, p. 73, *ruficeps* n. sp., Ceylon, p. 74, pl. A, fig. 3, CAMERON, Spolia Zeylan. iii.
Stomatocera sulcata, Manila, ASHMEAD, p. 401, P. U. S. Mus. xxix, n. sp.
Syntomaspis purpureomaculata, Centr. America, CAMERON, p. 58, Invert. pacif. i, n. sp.
Tanyctoryphus n. g. near *Euchalcis*, p. 312, *sulcifrons* n. sp., Grahamstown, p. 313, CAMERON, Rec. Albany Mus. i.
Tetrasmica bakeriana, Nicaragua, CAMERON, p. 56, Invert. pacif. i, n. sp.
Tetrastichoides browni, Manila, ASHMEAD, p. 113, P. U. S. Mus. xxix; *T. manilensis*, Philippines, ASHMEAD, p. 5, Canad. Ent. 1905 : n. spp.
Tetrastichus xanthomelanae, nomenclature, p. 81, habits, oviposition, pp. 64-68, MARCHAL, Bull. Soc. ent. France 1905.
T. basimacula, p. 63, *nicaraguensis*, p. 64, Nicaragua, CAMERON, Invert. pacif. i; *T. platensis*, Buenos Aires, BRÈTHES, p. 23, An. Mus. Buenos Aires (3) iv : n. spp.
Torymus bakeri, Nicaragua, p. 58, *aztecus*, Mexico, p. 59, CAMERON, Invert. pacif. i, n. spp.
Trichilogaster n. g. *Perilampides*, p. 555, *T. pendulae* n. sp., Australia, p. 560, and *Cynips maideni*, *longifoliae* Frogg., MAUR, Verh. Ges. Wien 1905.
Trigonomerus sp., STEBBING, p. 429, pl. xxxviii, Indian Forest. xxxi.

PROCTOTRYPIDÆ (incl. MYMARIDÆ and BETHYLIDÆ).

[Cf. ASHMEAD (31, 32, 33, 34, 38), BRUES (199), CAMERON (250, 261, 263, 270, 272), COCKERELL (324), GIRAULT (662, 663, 668), KIEFFER (840-843, 846), MEUNIER (1036, 1037), PERKINS (1150).]

The continuation of KIEFFER & MARSHALL's monograph of *Proctotrypidæ* of Europe and Algeria extends to p. 288 and pl. xii of André's Spec. Hym. Eur. vol. ix.

KIEFFER includes *Bethylinae* in *Proctotrypidæ*, though recognising that they are allied to *Scoliidae*.

Mymaridæ, taxonomy, PERKINS, Bull. exp. Stat. Hawaii i, No. 6.

Mymaridæ in baltic amber, see p. 128, Palaeoentomology.

Structure and function of foot of *Dryinus* ♀, KIEFFER, pp. 6-13, Zeitschr. Insbiol. i.

Acrepyris n. g., type *reticulatus* Kieff., KIEFFER, p. 249, Hym. Eur. Alg. ix.

Alaptus immaturus, Queensland, PERKINS, p. 197, Bull. exp. Stat. Hawaii i, n. sp.

Allobethylus n. g. *Bethylinae*, p. 247, for nondescript Papuan species, KIEFFER, Hym. Eur. Alg. ix.

Anagrus hydrophilus, Turkestan, ASHMEAD, p. 213, Ent. News Philad. xvi, n. sp.

Anaphes conotrachelii, Georgia, from eggs of *Conotrachelus*, GIRAULT, p. 220, Ent. News Philad. xvi, n. sp.

Anectadius n. g. near *Ectadius*, *striolatus*, p. 187, *bengalensis*, p. 189, n. spp., Bengal, KIEFFER, Ann. Soc. Bruxelles xxix.

Anopedias luzonicus, Philippines, ASHMEAD, p. 964, P. U. S. Mus. xxviii, n. sp.

Anteon subapterus, Scotland, p. 138, *reticulatus*, France, p. 140, *crenulatus*, Scotland, p. 141, *thomsoni*, Sweden, p. 142, *arcuatus*, p. 144, *vicus*, p. 145, Scotland, *marginatus*, France, p. 147, *imberbis*, Scotland, p. 149, *longiforceps*, p. 151, *carinatus*, p. 152, France, *albidicollis*, Austria, p. 157, *rubrifrons*, p. 158, *citrinicollis*, p. 159, *ruficollis*, p. 160, Hungary, *gaullei*, France, p. 161, *cameroni*, Scotland, p. 162, *maculipennis*, Sweden, p. 164, *gracilicollis*, p. 165, *fusiformis*, p. 166, Scotland, *punctatus*, France, p. 168, *levigatus*, Switzerland, p. 169, *mayeti*, Austria, p. 170, *rectus*, p. 171, *nigricornis*, p. 172, *scoticus*, p. 174, *triareolatus*, p. 175, *brevicollis*, *flavitarsis*, p. 176, *aequalis*, p. 177, *melanocera*, p. 179, Scotland, *crassiscapus*, France, p. 180, *vitellinipes*, Scotland, p. 181, *proximus*, Hungary, p. 182, *forsteri*, Germany, p. 183, *procericornis*, Scotland, p. 184, *luteipes*, France, p. 187, *declivis*, p. 188, *pallidinervis*, p. 189, Scotland, *dolichocerus*, p. 190, *flavipes*, France, *flavinervis*, p. 192, *parvulus*, p. 193, Scotland, *tripartitus*, Trieste, *punctulatus*, France, p. 194, *nitidus*, Scotland, *albicoxis*, France, p. 195, *fuscoclavatus*, p. 196, *filicornis*, *triangularis*, p. 197, *xanthostigma*, Scotland, *sericeus*, France, p. 198, *indivisus*, p. 199, *divisus*, Scotland, *trichotomma*, Hungary, p. 200, *trivialis*, Scotland, p. 201, *dorsalis*, France, *vulgaris*, Europe, p. 202, *succineipes*, Austria and Scotland, p. 203, *giraudi*, Hungary, *minutus*, p. 204, *nigroclavatus*, Scotland, *radialis*, Hungary, p. 205, *integer*, Scotland etc., *parvicollis*, Europe, p. 206, *pyrenaicus*, France, p. 207, *curvinervis*, *fractinervis*, p. 208, *hyalinipennis*, Scotland, *fuscipennis*, Hungary, p. 209, KIEFFER, Hym. Eur. Alg. ix, n. spp.

Anteon annulicornis, Mexico, BRUES, p. 185, Bull. Wisconsin Soc. iii, n. sp.

Aphanogmus formicarius, Draufeld, KIEFFER, p. 6, Berlin. ent. Zeitschr. 1, n. sp.

Aphanomerus n. g. *Platygasteridae* but anomalous, *bicolor*, pl. xi, fig. 1, p. 201, *niger*, *rufescens*, p. 202, *pusillus*, p. 203, n. spp., Queensland, PERKINS, Bull. exp. Stat. Hawaii i.

Aphelopus albipes, Bitche, KIEFFER, p. 217, Hym. Eur. Alg. ix, n. sp.

Bethylinae, table of genera, KIEFFER, pp. 98–109, Ann. Soc. Bruxelles xxix.

Bethylus, recharacterised and purified, KIEFFER, pp. 128, 129, t. c.

B. apteryx, Hungary, p. 272, *hamatus*, Morocco, p. 276, *arcuatus*, p. 277, *gaullei*, p. 279, Tangier, *lineatus*, Italy, p. 280, KIEFFER, Hym. Eur. Alg. ix, n. spp.

Bothriopria n. g. *Diapriinae*, p. 134, *saussurei* n. sp., Madagascar, p. 135, KIEFFER, Ann. Soc. Bruxelles xxix.

Camptoptera metotarsa, N. America, GIRault, p. 91, Psyche xii, n. sp.

Carina n. g. *Belytinæ*, p. 140, *nitida* n. sp., Burma, p. 141, KIEFFER, Ann. Soc. Bruxelles xxix.

Ceraphron opacus, Luxemburg, KIEFFER, p. 6, Berlin. ent. Zeitschr. 1, n. sp.

Ceratepyris n. g. *Bethylinae*, p. 285, *fuscipennis* n. sp., Hungary, p. 287, KIEFFER, Hym. Eur. Alg. ix.

Ceratobaeus incertus, Zanzibar copal, MEUNIER, p. 213, pl. 1, fig. 10, Rev. Sci. Bourbonnais 1905, n. sp.

Chalcogonatopus n. g. *Dryinidae*, p. 46, *gigas*, *optabilis*, *decoratus*, p. 47, Queensland, P. (*Eugonatopus* subg. n. p. 46) *pseudochromus*, Ohio, p. 48, n. spp., PERKINS, Bull. exp. Stat. Hawaii i.

Chelogynus atriceps to *Bocchus*, BRUES, p. 184, Bull. Wisconsin Soc. iii.

C. ferrugineus, p. 183, *grandis*, p. 184, N. America, BRUES, Bull. Wisconsin Soc. iii, n. spp.

Chlorodryinus n. g. *Dryinidae*, *pallidus* n. sp., Queensland, PERKINS, p. 57, Bull. exp. Stat. Hawaii i.

- Cœnopria* n. g. *Diapriinae*, p. 132, *fuscipennis* n. sp., Costa Rica with *Azteca*, p. 133, KIEFFER, Ann. Soc. Bruxelles xxix.
- Cryptobethylus* n. g. *Bethylinæ*, p. 242, HALIDAY & MARSHALL, spec. ? Italy, p. 259, Hym. Eur. Alg. ix.
- Diapria inconspicua*, Réunion, KIEFFER, p. 139, Ann. Soc. Bruxelles xxix ; *D. philippinensis*, Manila, ASHMEAD, p. 3, Canad. Ent. 1905 ; *D. madeirensis*, Madeira, p. 7, *clavatiscapus, socia*, p. 8, Luxembourg, KIEFFER, Berlin, ent. Zeitschr. I : n. spp.
- Disepyrus* n. g. *rufipes* n. sp., Malabar, KIEFFER, p. 115, Ann. Soc. Bruxelles xxix.
- Disogmus obsoletus*, Connecticut, BRUES, p. 186, Bull. Soc. Wisconsin iii, n. sp.
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- Delias aglaia thyra* subsp. n., FRUHSTORFER, p. 36, Ins. Börse 1905;
- D. descombesi* varr., FRUHSTORFER, pp. 113, 114, Soc. ent. xx; *D. schoenberghi choiceuli*, pl. v, fig. 17, JORDAN, p. 512, Nov. Zool. xii.
- D. callima*, New Guinea, ROTHSCHILD & JORDAN, p. 462, Nov. Zool. xii, n. sp.
- Euchloe belia* ab. *alhambra*, RIBBE, p. 137, Soc. ent. xx; *E. eupheno* var. *androgyno*, MEADE-WALDO, p. 372, pl. xix, fig. 7, Tr. ent. Soc. London 1905; *E. belemia* ab. *desertorum*, p. 27, pl. ii, *belia* var. *matutina*, p. 28, pl. ii, figg. 7–12, *belia* var. *kruegeri*, p. 29, pl. iii, figg. 1–6, *belia* var. *trinacriæ*, p. 31, pl. iv, figg. 3–6, *euphenoides* ab. *lecidiosa*, p. 31, pl. iv, figg. 9, 10, TURATI, Natural. Sicil. xviii.
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- Huphina cingala*, Ceylon, MOORE, p. 219, pl. 546, fig. 3, Lep. ind. vi, n. sp.
- Leptidea sinapis* varr. n. *major*, *crotatica*, *flavescens*, GRUND, pp. 145–147, cuts, Ent. Zeitschr. Guben xix.
- Leucacria* n. g. near *Pieris*, *acuta* n. sp., New Guinea, ROTHSCHILD & JORDAN, p. 463, Nov. Zool. xii.
- Lynceida hippo*, variation, FRUHSTORFER, p. 3, Soc. ent. xx.
- Mylothris chloris* var. n. *infuscata*, *M. rembina* var. n. *fusca*, p. 149, *M. rueppelli* var. n. *kikuyuensis*, p. 150, BARTEL, Nov. Zool. xii.
- Pantoporia abiasa matangana* subsp. n., FRUHSTORFER, p. 50, Soc. ent. xx.
- Pieris rapæ* var. *rossii*, SCHIMA, p. 24, Verh. Ges. Wien 1905; *P. rapæ*; *leucotera* is first gen. p. 515; *rapæ* var. n. *leucosoma*, p. 516; SCHÄFERDA, Verh. Ges. Wien 1905; *P. brassicæ*, *rapæ*, *napi*, differences in sexual organs, PETERSEN, p. 62, cuts, Mem. Ac. St. Petersb. (8) xvi, No. 2; *P. ergane* var. n. *longomaculata*, ROSTAGNO, p. 91, Boll. Soc. zool. Ital. xiv; *P. gidica* and allies, AURIVILLIUS, p. 18, Arkiv Zool. ii, No. 12; *P. cebron* var., BARTEL, p. 151, Nov. Zool. xii.
- P. continentalis*, Quango, HEYN, p. 57, Ent. Zeitschr. Guben xviii, n. sp.
- Tachyris lyncida fabiola* subsp. n., FRUHSTORFER, p. 3, Soc. ent. xx.
- Teracolus celimene* var. n. *sudanicus*, AURIVILLIUS, p. 19, Arkiv Zool. ii, No. 12; *T. daira* var. *nouna*, pl. xix, figg. 8, 9, MEADE-WALDO, p. 372 Tr. ent. Soc. London 1905; *T. daira* var. *nouna*, p. 135, cuts, larva, ANDREAS, Ent. Zeitschr. Guben xix; *T. auxo* from *T. tophæ*, eggs, DIXEY, p. xv, P. ent. Soc. London 1905.
- T. lanzi*, Trop. Africa, BARTEL, p. 151, Nov. Zool. xii, n. sp.
- Terias floscula*, pl. xxiv, fig. 1, p. 66, WEEKS, Illustr.

DANAIDÆ and ITHOMIIDÆ.

[Cf. HAENSCH (712), KAYE (828), WEEKS (1594).]

New *Ithomiinae*; HAENSCH in his paper Berlin. ent. Zeitschr. I, states that he cannot decide whether the forms he describes are "Gute Art, Unterart oder Abart." We record therefore only the names and localities.

- Amauris hecate reducta* var. n., BARTEL, p. 129, Nov. Zool. xii.
- Athyrtis distincta*, Columbia, HAENSCH, p. 144, Berlin. ent. Zeitschr. I.
- Calliploea mazares* subsp. n., FRUHSTORFER, p. 3, Soc. ent. xx.
- Callithomia schulzi*, Pará, pl. iv, fig. 6, HAENSCH, Berlin. ent. Zeitschr. I.
- Calloolleria chanchamaya*, Peru, pl. v, fig. 17, p. 165, *robusta*, fig. 18, *orrecta*, *fuscens*, p. 166, Bolivia, *peruvensis*, Peru, p. 167, HAENSCH, t. c.
- Ceratinia polymnides*, Colombia, p. 148, *viola*, Amazons, p. 149, *pamina*, *nina*, *callanga*, Bolivia, p. 150, *ignorata*, pl. iv, fig. 11, p. 151, Ama-

- zons, *sellana*, Bolivia, p. 152, *granadensis*, Muzo, *pellucida*, Brit. Guiana, *angelina*, Upp. Amazons, pl. iv, fig. 3, p. 154, *limpida*, Cauca Valley, p. 155, *nora*, Bolivia, *atagalpa*, Peru, p. 156, *cana*, Colombia, pl. v, fig. 16, p. 157, HAENSCH, t. c.; *C. acceptabilis*, pl. xx, p. 60, WEEKS, Illustr.
- Episcada hymen*, p. 170, *sulphurea*, Bolivia, *helena*, *cabenis*, pl. v, fig. 6, Muzo, *sylpha*, fig. 7, Venezuela, p. 171, *sidonia*, Peru, *dirama*, Bolivia, pl. v, fig. 19, HAENSCH, Berlin. ent. Zeitschr. l.
- Hymenitis nerina*, Colombia, *enigma*, Bolivia, pl. v, fig. 21, HAENSCH, p. 179, t. c.; *H. andreas*, pl. vi, fig. 4, p. 38, WEEKS, Illustr.
- Hypoleria indecora*, Brit. Guiana, p. 177, *cajona*, Peru, *garleppi*, Amazons, p. 178, *riffarthi*, pl. v, fig. 14, Ecuador, p. 179, HAENSCH, Berlin. ent. Zeitschr. l.
- Hyposcada rezia*, pl. iv, fig. 4, *idina*, Amazons, HAENSCH, p. 167, t. c.
- Ithomia alienassa*, Colombia, p. 163, *eleonora*, Bolivia, p. 164, HAENSCH, t. c.; *I. gardneri*, pl. xl, p. 93, WEEKS, Illustr.
- Leucothyris amazona*, pl. v, fig. 5, Amazons, *tuberculata*, Colombia, *attalita*, *valida*, p. 168, *bioculata*, pl. v, fig. 4, *epimakrena*, pl. v, fig. 15, Bolivia, *caucana*, p. 169, *fumata*, p. 170, Cauca Valley, HAENSCH, Berlin. ent. Zeitschr. l.
- Mechanitis casabranca*, Brazil, p. 145, *eurydice*, p. 147, Peru, HAENSCH, t. c.
- Melinura magniflora*, Peru, HAENSCH, p. 145, t. o.
- Napeogenes adulta*, *moles*, pl. iv, fig. 10, Brit. Guiana, p. 157, *olyrina*, pl. iv, fig. 5, Bolivia, *terastis*, Lower Amazons, p. 158, *deuotionis*, Peru, *gracilis*, Bolivia, pl. v, fig. 2, *pteronymiensis*, pl. v, fig. 3, Colombia, *sodalis*, Peru, p. 160, HAENSCH, t. c.
- N. potatorus*, Brit. Guiana, KAYE, p. 120, Ent. Rec. xvii, n. sp.
- Olyris sticheli*, S. Peru, HAENSCH, p. 142, Berlin. ent. Zeitschr. l.
- Pseudoscada emyra*, pl. v, fig. 11, Bolivia, p. 176, *fallens*, Brazil, p. 177, HAENSCH, t. c.
- Pteronymia dispar*, *splendida*, pl. v, fig. 12, Colombia, p. 173, *olimba*, Peru, *tenuis*, *auricula*, pl. v, fig. 10, p. 174, Colombia, *derama*, fig. 8, *nepis-cada*, fig. 9, *yungava*, *denticulata*, p. 175, Peru and Bolivia, *evonia*, fig. 20, *medellina*, fig. 13, p. 176, Colombia, HAENSCH, t. c.
- Sais paraensis*, p. 161, *badia*, Amazons, *camariensis*, Brit. Guiana, pl. iv, fig. 12, HAENSCH, t. c.
- Scada majuscula*, Brit. Guiana, *amplificata*, Muzo, pl. v, fig. 1, p. 162, HAENSCH, t. c.
- Tithorea melanina*, *assimilis*, p. 143, *brunnea*, p. 144 Peru, HAENSCH, t. c.

ACRÆIDÆ and HELICONIIDÆ.

Monograph, recognising 2 genera, 87 good species and 4 doubtful; 49 of the species are divided into 214 subspecies, and these into named forms; thus *H. melpomene melpomenides* is the name of a form found in Dutch Guyana, and it belongs to the cohort *Melpomene-formes* of the section *Opisogynni* of the genus *Heliconius*. STICHEL & RIFFARTH, das Tierreich Lief. xxii.

- Acræa zetes sidamona*, p. 179, *A. peneleos gelonica*, *A. jodutta æthiops*, p. 183, *A. circeis rhodina*, *A. lycoa æqualis*, *A. alciope schevana*, p. 184, subsp. n., ROTHSCHILD & JORDAN, Nov. Zool. xii; *A. encedon* ab. n. *radiata*, AURIVILLIUS, p. 4, Arkiv Zool. ii, No. 12; *A. buxtoni* larva, JUNOD, p. 198, Bull. Soc. Neuchatel xxvii.
- Heliconius spadicarius*, pl. ix, p. 41, WEEKS, Illustr.; *H. doris*, variation, HENNEGUY & OBERTHÜR, pp. 146, 147, Bull. Soc. ent. France 1905.
- Planema epæa homochroa* subsp. n., ROTHSCHILD & JORDAN, p. 185, Nov. Zool. xii.

NYMPHALIDÆ.

[Cf. BARTEL (84), CLARK (321), DRUCE (456), FRUHSTORFER (620, 622), JUNOD (825), LINDEN (957), PETERSEN (1155), ROTHSCHILD (1304), ROTHSCHILD & JORDAN (1307), SCHÜLKE (1355), STICHEL (1450, 1451), WEEKS (1594).]

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Apatura iris and *ilia*, sexually distinct, PETERSEN, pp. 75, 76, cuts, Mem. Ac. St. Petersb. (8), xvi, No. 2.

Argynnis, the sex structures in the various species, PETERSEN, pp. 31–61, Mem. Ac. St. Petersb. (8) xvi, No. 2; *A. pales*, var., pl. i, fig. 3, HIRSCHKE, p. 5, Jahresber. Wien. ent. Ver. 1905; *A. pales killiasi*, cut, GALVAGNI, p. 513, Verh. Ges. Wien 1905; *A. sclene*, *lathonia*, varr., MÖBIUS, pl. i, figg. 1, 2, 4, 7, 8, Iris Dresden xviii; *A. niobe eris*, pl. i, fig. 7, BERGER, p. 87, Jahresber. Wien. ent. Ver. 1905; *A. paphia*, gynandromorph, TURATI, p. 35, pl. vi, fig. 2, Natural. Sicil. xviii.

Asterope ansorgei, *garega*, etc., synonymy, BARTEL, p. 136, Nov. Zool. xii.

Aterica galene var. n. *dimorpha*, BARTEL, p. 138, t. c.

Cethosia cydippe lucina n. sp. (sic), Jobi, *biblis alceste* subsp. n., FRUHSTORFER, p. 36, Ins. Börse 1905.

Charaxes epijasius, variation, larva, pp. 7, 8, *C. kheili* var. *northcotti*, p. 9, AURIVILLIUS, Arkiv Zool. ii, No. 12; *C. nandina* ♀, *C. hansali barin-gana* subsp. n., ROTHSCHILD, p. 78, Nov. Zool. xii; *C. zoolina*, pl. i, fig. 1, *C. neanthes*, p. 205, pl. i, fig. 2, hybrid, fig. 3, JUNOD, Bull. Soc. Neuchatel xxvii.

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Euryphene barce ab. n. *achillæna*, p. 144, *E. lætitia* var., p. 145, BARTEL, Nov. Zool. xii.

E. intermedia, Cameroons, BARTEL, p. 143, t. c. n. sp.

Euryphura ochracea, p. 146, *fulminea*, p. 147, W. Africa, BARTEL, t. c. n. spp.

Eurytelia castelnau'i ochus subsp. n., FRUHSTORFER, p. 49, Soc. ent. xx.

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Junonia orithya metion subsp. n., FRUHSTORFER, p. 50, Soc. ent. xx.

Leucosticha dædabus var., BARTEL, p. 139, Nov. Zool. xii.

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- Perrhanæa cubana*, Cuba, DRUCE, p. 549, Ann. Nat. Hist. (7) xvi, n. sp.
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MORPHIDÆ (and allies).

[Cf. FRUHSTORFER (619, 623), JANET (814), STICHEL (1450, 1451), ROTHSCHILD & JORDAN (1307), WEEKS (1594).]

- Amathusia* var. n., FRUHSTORFER, pp. 129, 130, 137, Soc. ent. xx.
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Morpho subspp. n., FRUHSTORFER, pp. 125, 126, Ent. Zeitschr. Guben xix; *M. adonis* var. n. *major*, LATHY, p. 226, Entomologist 1905.
Morphopsis ula, p. 454, *meeki*, p. 456, New Guinea, ROTHSCHILD & JORDAN, Nov. Zool. xii, n. spp.
Stichophthalma matilda, Laos, JANET, p. 215, Bull. Soc. ent. France 1905, n. sp.
Tenaris; revision, with numerous new forms, FRUHSTORFER, pp. 57–89 & 119–128, pls. 1, 2, Wien. ent. Zeit. xxiv; *T. westwoodi* ab. n. *uni-pupillata*, FRUHSTORFER, p. 35, Soc. ent. xx.
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Thaumantis varr. n., FRUHSTORFER, p. 13, Soc. ent. xx.
Zeuxidia nicevillei subsp. n., FRUHSTORFER, p. 33, t. c.

SATYRIDÆ.

[Cf. AUSTAUT (44), BARTEL (84), BLACHIER (122), CHAPMAN (302), DRUCE (457), GODMAN (671), GRINNELL (697), ROTHSCHILD & JORDAN (1306, 1307), THIEME (1490), WEEKS (1594).]

Cœnonymphia pamphilus, GALVAGNI, p. 25, Verh. Ges. Wien 1905; *C. pamphilus* var. n. *pallida*, OUDEMANS, p. 15, pl. iv, fig. 14, Tijdschr. Ent. xviii.

C. vaucherii with var. *geminipuncta*, Marocco, BLACHIER, p. 213, Bull. Soc. ent. France 1905, n. sp.; *C. vaucherii*, pl. xix, figg. 1, 2, MEADE-WALDO, p. 377, Tr. ent. Soc. London 1905.

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Erebia euryale var., SCHÄWERDA, pp. 27, 29, Verh. Ges. Wien 1905; *E. flavofasciata*, variation in Engadine and Ticino, LOWE, pp. 38, 39, Ent. Rec. xvii; *E. stygne* and *evias* in Spain, larvæ, variation, CHAPMAN, pp. 9–31, Tr. ent. Soc. London 1905.

Erebia palaria, N. Spain, CHAPMAN, p. 13, pl. ii, t. c. n. sp.

Eretis n. g. p. 131, for part of *Pedaliodes*, *rubicaria*, Colombia, pl. iii, fig. 40, p. 134, *ochrea*, Ecuador, pl. iii, fig. 41, p. 135, n. spp., THIEME, Berlin. ent. Zeitschr. 1.

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Melanargia ines and *lachesis* varr., RIBBE, p. 138, Soc. ent. xx.

Melanitis libya nyassae subsp. n., BARTEL, p. 130, Nov. Zool. xii; *M. ansorgei*, pl. v, fig. 15, JORDAN, p. 512, Nov. Zool. xii.

Myccalesis safitza aethiops subsp. n., ROTHSCHILD & JORDAN, p. 175, Nov. Zool. xii; *M. iccius* ab. n. p. 131, *M. dubia* ♂, p. 132, BARTEL, Nov. Zool. xii.

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Oxeoschistus duplex, Bolivia, GODMAN, p. 189, pl. x, fig. 12, Tr. ent. Soc. London 1905, n. sp.

Pararge achiene var., var. *mendelensis*, LOWE, p. 60, Entomologist 1905; *P. hiera* var. n. *finmarchica*, NEUBURGER, p. 49, Soc. ent. xx.; *P. hiera*, natural history, PEYRON, pp. 249–251, Ent. Tidskr. xxvi.

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P. albonotata, Venezuela, GODMAN, p. 189, pl. x, fig. 11, Tr. ent. Soc. London 1905; *P. proculeja*, Peru, p. 57, pl. iii, fig. 27, *puma*, Bolivia, p. 58, pl. ii, fig. 19, *fumaria*, Merida, p. 60, pl. iii, fig. 25, *simpla*, Ecuador, p. 62, pl. iii, fig. 39, *exul*, Rio, p. 63, pl. iii, fig. 32, *nævia*,

- Ecuador, pl. iii, fig. 26, *auraria*, Peru, pl. ii, fig. 20, p. 64, *labulla* (= *perperna* Feld.) Bogotá, p. 65, *circumducta*, Mexico, p. 74, pl. iii, fig. 23, *maneja*, Colombia, p. 76, *amussis*, Cauca, p. 78, pl. iii, fig. 22, *sulpa*, Bolivia, p. 80, pl. iii, fig. 29, *rahab*, Peru, pl. iii, fig. 31, p. 82, *muscosa*, Bolivia, p. 83, pl. ii, fig. 17, *jephtha*, pl. ii, fig. 18, Antioquia, p. 84, *antulla*, p. 86, pl. iii, fig. 28, *daulis*, pl. iii, fig. 24, p. 87, Peru, *simmias*, Bolivia, pl. iii, fig. 36, p. 90, *albutia*, Peru, pl. iii, fig. 21, p. 91, *cestia*, Colombia, pl. i, fig. 8, p. 94, *nebris*, pl. i, fig. 10, *empetrus*, pl. i, fig. 7, Merida, p. 98, *tyro*, Amazona, p. 100, *pheres*, Bolivia, pl. i, fig. 9, p. 101, *uncus*, Tucumán, p. 102, *asconia*, Ecuador, pl. ii, fig. 13, p. 104, *baccara*, Antioquia, pl. iii, fig. 35, p. 105, *entella*, Ecuador, pl. ii, fig. 16, p. 106, *tucca*, Bolivia, pl. ii, fig. 15, *luperca*, Ecuador, p. 107, *cladonia*, Bolivia, pl. ii, fig. 14, p. 109, *quincedis*, Peru, pl. i, fig. 5, p. 110, *auristriga*, pl. ii, fig. 12, p. 111, *parma*, Colombia, p. 115, pl. i, fig. 2, *niphossa*, pl. i, fig. 1, p. 116, *milvia*, pl. iii, fig. 34, p. 120, *amafania*, pl. i, fig. 4, p. 122, Peru, *pamphos*, Bolivia, p. 129, THIEME, Berlin, ent. Zeitschr. I, n. spp.
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[Cf. ROTHSCHILD & JORDAN (1307), WEEKS (1594).]

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Catachrysops eleusis ♂ ♀, pl. iv, figg. 15, 16, p. 22, ROTHSCHILD, Nov. Zool. xii.

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tancrei, p. 269, Centr. Asia, PÜNGELER, Iris Dresden xvii; *S. ? xanthopyga*, W. Africa, AURIVILLIUS, p. 45, Arkiv Zool. ii, No. 12: n. spp.

BOMBYCES

(*s. l.*, including CHALCOSIIDÆ, PSYCHIDÆ, HEPIALIDÆ, COSSIDÆ,
AGARISTIDÆ, and various families of more or less doubtful
position. *Uraniidæ* and *Epiplemidæ*, and *Cymatophoridæ*,
see GEOMETRIDÆ; *Thyrididæ*, see PYRALIDÆ).*

[Cf. AURIVILLIUS (40, 41), BARNES (77), BETHUNE-BAKER (108), BLACHER (122), COVERDALE (373), DOGNIN (439, 440, 441, 442), DRUCE (454, 455), DUDGEON (465), DYAR (470, 471, 472), DZIURZYNSKI (486, 487), GIBSON (653), HAMPSON (716, 719), HUDSON (794), JUNOD (825), KÜCKEL (903–907), LOWER (981), MARSHALL (1011), PACKARD (1131), PERKINS (1151), PEEPERS & SNELLEN (1203), PÜNGELER (1221), ROTHSCHILD (1304), ROTHSCHILD & JORDAN (1307), SCHAUSS (1329), SCHWANGART (1367), SEIFERT (1374), SILVESTRI (1399), SKINNER (1406), SWINHOE (1456–1462), VÉRITY (1540), WARREN & ROTHSCHILD (1576).]

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Æmilia melanachra, Peru, SCHAUSS, p. 226, P. U. S. Mus. xxix, n. sp.

Æthria aner, Venezuela, HAMPSON, p. 428, Ann. Nat. Hist. (7) xv, n. sp.

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* Owing to diversity of opinion as to Chalcosiidae, Epiplemidæ, both Bombyces and Geometridæ should be inspected as regards these insects. As regards Cymatophoridæ, Thyrididæ; Noctuidæ should also be looked through as well as Bombyces and Geometridæ.

- Agylla delicia, auranticaria, subvoluta*, p. 196, *sanctæ-johannis*, p. 197,
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Ammalo helops var. n. *trujillaria*, DOGNIN, p. 148, Ann. Soc. ent. Belgique
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xlviii; *A. albistriga*, larva, HAMPSON, p. 210, J. Bombay Soc. xvi.
A. seminigra, Abyssinia, HAMPSON, p. 447, Ann. Nat. Hist. (7) xv, n. sp.
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Anadiasa cervina, Africa, AURIVILLIUS, p. 314, pl. xvi, f. 5, Tr. ent. Soc.
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- Caspalia nigridorsa*, p. 40, *citrinamaculata*, p. 41, W. Africa, AURIVILLIUS, Arkiv Zool. ii, No. 12, n. spp.

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- Eucereon balium* to *Heliura*, HAMPSON, p. 430, t. c.; *E. metoidesis* n. n. for 1074 Hamps. Synt., HAMPSON, l. c.
- E. atrigutta*, p. 464, *leprota*, p. 465, Venezuela, DRUCE, Ann. Nat. Hist. (7) xv; *E. dorsipuncta*, Venezuela, p. 430, *ochrota*, Jamaica, p. 431, HAMPSON, Ann. Nat. Hist. (7) xv; *E. carabayana*, p. 191, *flavincincta*, *meruloides*, *lemoulti*, S. America, SCHAUS, p. 192, P. U. S. Mus. xxix; *E. formosum*, p. 9, *robustulum*, p. 10, Peru, DOGNIN, Naturaliste 1905 : n. spp.
- Euchromia plagosa*, New Pomerania, p. 495, *shortlandica*, *salomonis*, *collaris*, Solomon Ids., p. 496, SWINHOE, Ann. Nat. Hist. (7) xv, n. spp.
- Euclea mira* n. n. for *Parasa incisa* N. & D. nec Harv., DYAR, p. 367, P. U. S. Mus. xxix.

- E. cipior*, p. 367, *permodesta*, *pallicolor*, *cuspostriga*, p. 368, S. America, *dolliana*, Arizona, *bidiscaulis*, Panama, p. 369, DYAR, t. c. n. spp.
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Eumaschane n. g. *Notodontidae*, *laura* n. sp., French Guiana, SCHAUSS, p. 241, t. c.
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Euprosterna n. g. near *Natada*, *elezana*, Mexico to Guiana, *pernambucensis*, p. 377, Brazil, n. spp., DYAR, P. U. S. Mus. xxix.
Eupseudosoma aberrans, Mexico, SCHAUSS, p. 211, P. U. S. Mus. xxix, n. sp.
Eurhodia n. g. *Saturniidæ*, *gyra* n. sp., New Guinea, ROTHSCHILD & JORDAN, p. 466, Nov. Zool. xii.
Eurosa acanthocera, Sangir, HAMPSON, p. 434, Ann. Nat. Hist. (7) xv, n. sp.
Eurota xanthosoma, Argentina, HAMPSON, p. 428, t. c. n. sp.
Eurynola n. g. *Nolinæ* type *mesoleuca* Lower, HAMPSON, p. 432, t. c.
Eusemia vetula, larva, pl. vii, fig. 6, p. 195, PIEPERS, Tijdschr. Ent. xlvi.
Eutane nivea, Pulo Laut, HAMPSON, p. 439, Ann. Nat. Hist. (7) xv, n. sp.
Euzeugapteryx n. g. *Lithosiidæ*, DYAR, p. 175, *speciosa* n. sp., French Guiana, SCHAUSS, p. 205, P. U. S. Mus. xxix.
Erius albascripta, Guiana, SCHAUSS, p. 213, t. c. n. sp.
Farigia magniplaga, p. 242, *fragilis*, p. 243, Guiana, SCHAUSS, t. c. n. spp.
Gastropakæs schultzei, W. Africa, AURIVILLIUS, pl. iv, fig. 5, p. 37, Arkiv Zool. ii, No. 12; *G. rufescens*, W. Africa, AURIVILLIUS, p. 314, pl. xvi, fig. 10, Tr. ent. Soc. London 1905 : n. spp.
Gerarctia n. g. *Arctiidæ*, p. 448, *poliotis* n. sp., Canaries, p. 449, HAMPSON, Ann. Nat. Hist. (7) xv.
Glaucostola flava, *binotata*, Guiana, *metaxantha*, Costa Rica, SCHAUSS, p. 221, P. U. S. Mus. xxix, n. spp.
Ginaldia n. g. *Notodontidae*, *davidsoni* n. sp., French Guiana, SCHAUSS, p. 282, t. c.
Givira triplex, Guiana, SCHAUSS, p. 342, t. c.; *G. chiclin*, p. 149, *moche*, p. 150, Peru, DOGNIN, Ann. Soc. ent. Belgique 1905 : n. spp.
Gonometa postica ♂ ♀, JUNOD, pl. iii, Bull. Soc. Neuchatel xxvii.
G. regia, Uganda, AURIVILLIUS, p. 313, pl. xvi, fig. 3, Tr. ent. Soc. London 1905, n. sp.
Gois n. g. *Megalopygidae*, DYAR, p. 177, *nigrescens* n. sp., Brit. Guiana, SCHAUSS, p. 338, P. U. S. Mus. xxix.
Gonimbrasia nictitans, larva, AURIVILLIUS, p. 30, pl. ii, figg. 3, 4, Arkiv Zool. ii, No. 12.
Gophia niveigutta, Guiana, SCHAUSS, p. 245, P. U. S. Mus. xxix, n. sp.
Gymnelia pitthea and *cocho* to *Pseudosphenoptera*, *pitthea* being ♂ of *P. basalis*, HAMPSON, p. 427, Ann. Nat. Hist. (7) xv.
G. tarsipuncta, Brazil, SCHAUSS, p. 184, P. U. S. Mus. xxix, n. sp.
Halisidota discalis Walk. = (*Azatrephes pardisea*), HAMPSON, p. 430, Ann. Nat. Hist. (7) xv.
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Hapigia repandens, Mexico and S. America, p. 291, *gaudens*, *annulata*, *aymara*, Guiana, p. 292, SCHAUSS, t. c. n. spp.
Haplopacha n. g. near *Chondrostega*, p. 323, *cinerea* n. sp., Rhodesia, p. 324, AURIVILLIUS, Tr. ent. Soc. London 1905.
Heliura phacosoma, *zonata*, Venezuela, DRUCE, p. 464, Ann. Nat. Hist. (7)

- xv; *H. dolens, umbrimacula*, S. America, SCHAUSS, p. 191, P. U. S. Mus. xxix : n. spp.
- Hemeroampa leucostigma*, no. of eggs, GIRAULT, p. 167, Ent. News Philad. xvi.
- Hemiceras affinis*, Peru, buckleyi, Ecuador, DRUCE, p. 542, Ann. Nat. Hist. (7) xv; *H. indigna, undilinea, jejuna*, p. 283, *satelles, beata, gortynoides*, p. 284, *crassa, commentica*, p. 285, *longipennis, flava, maronita*, p. 286, *stupida, cayennensis, flavescens*, p. 287, *laurentina, manora*, p. 288, *metallescens, conspirata*, S. America, *micans*, Mexico, p. 289, *nebulosa, nigriplaga, muscosa*, p. 290, *poulsoni*, p. 291, S. America, SCHAUSS, P. U. S. Mus. xxix : n. spp.
- Hemipecten* n. g. *Cossidae*, DYAR, p. 177, *ecparilis, acutipenais, cossuloides*, p. 340, *niveogrisea, rotundopuncta, marmorata*, p. 341, French Guiana, n. spp., SCHAUSS, P. U. S. Mus. xxix.
- Heniocha terpsichore*, larva, pl. ii, fig. 1, AURIVILLIUS, p. 34, Arkiv Zool. ii.
- Heorta carema*, Guiana, SCHAUSS, p. 233, P. U. S. Mus. xxix, n. sp.
- Hepaliopsis* n. g. type *Semyra agemytha* Dr., DYAR, p. 374, P. U. S. Mus. xxix.
- Heptaliscus algeriensis* ab. n. *joannisi*, LUCAS, p. 53, pl. v, fig. 1, Ann. Soc. ent. France 1905.
- Heptalus pyrenaicus*, early stages, XAMBEU, pp. 14–16, Naturaliste 1905; *H. sequiolus*, larva, WILLIAMS, pp. 19, 20, Ent. News Philad. xvi; *H. sequiolus*, larval habits and life-history, WILLIAMS, pp. 283–287, t. c.
- Herea xanthogaster* = (*Desmidocnemis prittwitzi*), HAMPSON, p. 429, Ann. Nat. Hist. (7) xv.
- Herpa meeki* = (*Pidorus ericydes* Swinh.), ROTHSCHILD & JORDAN, p. 475, Nov. Zool. xii.
- Herpolasia* n. g. *Chalcosiidae*, *augarra* n. sp., New Guinea, and incl. *C. albomedia* Rothschild, iid. t. c.
- Heterocampa wymola*, Arizona, BARNES, p. 214, Canad. Ent. 1905; *H. lama, gravis*, p. 249, *infanda, habilis*, p. 250, *bactrea, echina, delira*, p. 251, *foliata, cariosa*, p. 252, *marginalis, oemula, notabilis*, p. 253, *otiosa, patricia, caluna*, p. 254, *poulsoni, subalbida*, p. 255, SCHAUSS, P. U. S. Mus. xxix; *H. multilineata*, Tucuman, DOGNIN, p. 148, Ann. Soc. ent. Belgique 1905 : n. spp.
- Heterogynis*, larval habits, matrivorously, CHAPMAN, pp. 177–184, Tr. ent. Soc. London 1905.
- Heteropan alberti*, New Guinea, ROTHSCHILD & JORDAN, p. 475, Nov. Zool. xii, n. sp.
- Heteropsyche* n. g. *Epipyropidae*, p. 81, *peciliochroma, melanochroma*, p. 82, *micromorpha, dyscrita, stenomorpha*, p. 83, n. spp., Australia, PERKINS, Bull. exp. Stat. Hawaii i.
- Hippia undulata*, Colombia, DRUCE, p. 540, Ann. Nat. Hist. (7) xv; *H. salandera*, Guiana, SCHAUSS, p. 243, P. U. S. Mus. xxix : n. spp.
- Homoneuronia* n. g. *Syntomidae*, DYAR, p. 174, *modesta* n. sp., Guiana, SCHAUSS, p. 188, P. U. S. Mus. xxix.
- Hyaleucerea leucosticta*, Venezuela, DRUCE, p. 466, Ann. Nat. Hist. (7) xv; *H. phaeosoma*, Paraguay, HAMPSON, p. 431, Ann. Nat. Hist. (7) xv : n. spp.
- Hydromis* n. n. for *Desmidocnemis*, HAMPSON, p. 429, t. c.
- Hydrias gurda, congruens*, Peru, *canescens*, Venezuela, DOGNIN, p. 120, Naturaliste 1905, n. spp.
- Hypermæpha maroniensis*, Guiana, SCHAUSS, p. 199, P. U. S. Mus. xxix, n. sp.
- Hyperthæma ruberrima*, p. 221, *coccinata*, p. 222, Guiana, SCHAUSS, t. c. n. spp.
- Hypidalia sanguirena*, Guiana, SCHAUSS, p. 220, t. c. n. sp.

- Hypocladia elongata*, Venezuela, *albipuncta*, Peru, DRUCE, p. 461, Ann. Nat. Hist. (2) xv, n. spp.
- Hypomolis minca*, Mexico, SCHAUS, p. 227, P. U. S. Mus. xxix, n. sp.
- Hyponerita interna*, *lucens*, *furva*, p. 228, *carinaria*, *declivis*, *incerta*, p. 229, Guiana, SCHAUS, t. c. n. spp.
- Hypopta inguromorpha*, *crassiplaga*, *triarcata*, p. 343, French Guiana, SCHAUS, t. c. n. spp.
- Hypsia donatana*, pl. D, fig. 20, p. 201, HAMPSON, J. Bombay Soc. xvi.
- Ichoria chrostomides*, Guiana, SCHAUS, p. 187, P. U. S. Mus. xxix, n. sp.
- Idalus rubens*, *laurentia*, p. 207, *neja*, *flavoplaga*, *albicoxae*, p. 208, *catenata*, p. 209, S. America, SCHAUS, t. c. n. spp.
- Idonauton nigribasis*, India, pl. D, fig. 31, p. 196, HAMPSON, J. Bombay Soc. xvi, n. sp.
- Ilema henleyi*, Sudan, WARREN & ROTHSCILD, p. 23, pl. iv, fig. 31, Nov. Zool. xii; *I. fuscifrons*, New Guinea, HAMPSON, p. 433, Ann. Nat. Hist. (7) xv : n. spp.
- Illicia faustiniula*, early stages, synonymy, WILLIAMS, p. 257, Ent. News Philad. xvi.
- I. abala*, *subrubra*, *pygmaea*, *rubricollis*, French Guiana, SCHAUS, p. 200, P. U. S. Mus. xxix; *I. triplaga*, *roseiceps*, Paraguay, *rhodocraspis*, Argentina, HAMPSON, p. 436, Ann. Nat. Hist. (7) xv : n. spp.
- Isanthrene fulvipuncta*, Panama, HAMPSON, p. 427, t. c. n. sp.
- Isbarta pieridooides*, sexes and variation, p. 148, *I. binghami* Butl. = (*cyanescens* Hamps.), *I. curiosa* Swinh. = (*aspasia* Snell.) p. 149, SWINHOE, Ann. Nat. Hist. (7) xvi.
- Ischnocampa deceptura*, *flavicosta*, *barbata*, Peru, DRUCE, p. 466, Ann. Nat. Hist. (7) xv, n. spp.
- Ixylasia pyroproctis*, Venezuela, DRUCE, p. 462, Ann. Nat. Hist. (7) xv; *I. semivitreata*, Brazil, HAMPSON, p. 429, Ann. Nat. Hist. (7) xv : n. spp.
- Kaseria* n. g. *Notodontidae*, *pallida* n. sp., French Guiana, SCHAUS, p. 283, P. U. S. Mus. xxix.
- Lacosoma otalla*, Guiana, SCHAUS, p. 330, t. c. n. sp.
- Laelia suffusa*, *testacea*, larvæ, HAMPSON, p. 198, J. Bombay Soc. xvi.
- L. euproctina*, W. Africa, AURIVILLIUS, p. 26, Arkiv Zool. ii, No. 12, n. sp.
- Lasiocampa josua* var. *n. vaucheri*, BLACHIER, p. 52, Bull. Soc. ent. France 1905; *L. quercus* ab. *n. paradoxo*, FRINGS, p. 89, Soc. ent. xx; but t. c. p. 99 is *olivaceo-fasciata* Cock.
- Lebedodes?* *schultzei*, Niger, AURIVILLIUS, p. 41, Arkiv Zool. ii, No. 12, n. sp.
- Lechriolepis pulchra*, Centr. Africa, AURIVILLIUS, p. 318, pl. xvi, f. 12, Tr. ent. Soc. London 1905, n. sp.
- Lenodora hyalomelæna*, Madras, pl. D, f. 9, p. 197, HAMPSON, J. Bombay Soc. xvi, n. sp.
- Lentagenia* n. g. for *Eugivira nudria* Schaus, DYAR, p. 178, P. U. S. Mus. xxix.
- Lepasta maonica*, *maltha*, p. 239, *viridis*, p. 240, Guiana, SCHAUS, P. U. S. Mus. xxix, n. spp.
- Leucotmensis albigutta*, p. 185, *thoracica*, p. 186, Guiana, SCHAUS, t. c. n. spp.
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- Liparis chrysorrhea* and Thabor oaks at Rennes, HOULBERT, Bull. Soc. Sci. Med. Ouest France xiv, pp. 113-118.
- Lobeza smithi*, Colombia, DRUCE, p. 542, Ann. Nat. Hist. (7) xv; *L. minor*, Guiana, SCHAUS, p. 274, P. U. S. Mus. xxix : n. spp.

- Loxophlebia cinctata*, Venezuela, HAMPSON, p. 428, Ann. Nat. Hist. (7) xv;
L. geminata, French Guiana, SCHAUS, p. 186, P. U. S. Mus. xxix : n. spp.
Lusura plurabilis, Guiana, SCHAUS, p. 275, t. c. n. sp.
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Macrocneme maroniensis, Guiana, SCHAUS, p. 188, P. U. S. Mus. xxix, n. sp.
Macroleptera ceylonica, Ceylon, *inconspicua*, Bombay, HAMPSON, p. 196,
J. Bombay Soc. xvi, n. spp.
Macrothyatirac rubi subsp. n. *digramma*, pl. xix, f. 10, MEADE-WALDO,
p. 390, Tr. ent. Soc. London 1905.
Mænas maculifascia, larva, pl. vi, f. 1, p. 181, PIEPERS, Tijdschr. Ent.
xlivii.
M. fosteri, Paraguay, HAMPSON, p. 446, Ann. Nat. Hist. (7) xv, n. sp.
Mahasena destructor, Sikkim, DUDGEON, p. 401, J. Bombay Soc. xvi, n. sp.
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t. c.; *M. garlepi*, Bolivia, *semifulva*, Peru, DRUCE, p. 541, Ann. Nat.
Hist. (7) xv : n. spp.
Mesocia lorna, p. 336, *terminata*, p. 337, Guiana, SCHAUS, P. U. S. Mus.
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Mesothera caruleicorpus, Bolivia, *nanum*, Surinam, SCHAUS, p. 185, t. c. ;
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Metarbela triguttata, W. Africa, AURIVILLIUS, p. 41, Arkiv Zool. ii, No. 12,
n. sp.
Metaractria haematricha, Abyssinia, HAMPSON, p. 426, Ann. Nat. Hist. (7)
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Metopoceras gauckleri, Jordan Valley, PÜNGELER, p. 267, Iris Dresden xvii,
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Metraga rubicolor, Nicaragua, DYAR, p. 370, P. U. S. Mus. xxix, n. sp.
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- Mimopacha tripunctata*, Niger, AURIVILLIUS, p. 36, pl. iii, f. 8, Arkiv Zool. ii, No. 12, n. sp.
- Minacraga* n. g. *Dalceridae*, DYAR, p. 176, *disconitens* n. sp., French Guiana, SCHAUS, p. 331, P. U. S. Mus. xxix.
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- Miresa venosa*, San Salvador, DYAR, p. 372, t. c. n. sp.
- Monda heylaerti*, Delagoa, JUNOD, p. 249, pl. iv, f. 4, Bull. Soc. Neuchatel xxvii, n. sp.
- Napata euchloa*, Jamaica, HAMPSON, p. 429, Ann. Nat. Hist. (7) xv, n. sp.
- Natada deba*, *debella*, *dognini*, p. 379, *bergii*, *increcens*, *sufficiens*, *in-candescens*, p. 380, *perfectinata*, *subpectinata*, p. 381, S. America, DYAR, P. U. S. Mus. xxix, n. spp.
- Navarcostes* n. g. *Notodontidae*, *limnata* n. sp., French Guiana, SCHAUS, p. 280, P. U. S. Mus. xxix.
- Neaceres pyrozona*, *rhomocrypta*, *discalis*, *flaviceps*, Venezuela, DRUCE, p. 463, Ann. Nat. Hist. (7) xv, n. spp.
- Neëressa* n. g. *Syntomidae* type *sagada* Semp., HAMPSON, p. 426, Ann. Nat. Hist. (7) xv.
- Neaxia gnosia*, p. 211, *bella*, p. 212, Guiana, SCHAUS, P. U. S. Mus. xxix, n. sp.
- Neosaptia albata*, p. 470, *aegualis*, *leucodera*, p. 471, *pæcila*, p. 472, New Guinea, ROTHSCHILD & JORDAN, Nov. Zool. xii, n. spp.
- Neritos onytes*, *psamas*, sexes, HAMPSON, p. 443, Ann. Nat. Hist. (7) xv.
- N. carmen*, *coccinea*, p. 224, *gaudialis*, *tremula*, *maculosa*, p. 225, *chrysorozona*, *propheva*, *sanguidorsia*, p. 226, French Guiana, SCHAUS, P. U. S. Mus. xxix; *N. macrostidza* (=1543 Cat. Lep. Phal.) p. 443, *discobola*, Venezuela, *leucoplaga*, *holophaea*, p. 444, *phaeoplaga*, *albicollis*, *steniptera*, p. 445, *cyclopera*, p. 446, Guiana, HAMPSON, Ann. Nat. Hist. (7) xv : n. spp.
- Neseca* n. g. *Notodontidae*, *norema* n. sp., French Guiana, SCHAUS, p. 275, P. U. S. Mus. xxix.
- Nodozana bellicula*, Guiana, SCHAUS, p. 201, t. c. n. sp.
- Nola bicincta*, Cape Colony, HAMPSON, p. 432, Ann. Nat. Hist. (7) xv; *N. brachystria*, India, pl. d, f. 16, p. 435, HAMPSON, J. Bombay Soc. xvi; *N. mesographa*, Guiana, SCHAUS, p. 195, P. U. S. Mus. xxix : n. spp.
- Notoplusia eugenii*, p. 248, *sabrena*, p. 249, Guiana, SCHAUS, t. c. n. spp.
- Nystalea porgana*, *sequora*, p. 232, *marona*, Guiana, p. 233, SCHAUS, t. c. n. spp.
- Ochrostigma melagona* ab. n. *melanochroa*, SCHULTZ, p. 91, Jahresber. Wien. ent. Ver. 1904.
- Ocinaropsis* n. g. *Lasiocampidae*, *obscura* n. sp., Natal, AURIVILLIUS, p. 317, Tr. ent. Soc. London 1905.
- Ocnogyna baetica*, life-history, POWELL, pp. 237–240, pl. ix, Ent. Rec. xvii; *O. baetica*, CHAPMAN, t. c. p. 265, pl. x.; *O. baeticum*, natural history, ravages, SILVESTRI, Bull. Scuol. Agric. Portici (2) No. 10, 12 pp.
- Odonestis fossa*, pl. d, f. 14, HAMPSON, p. 198, J. Bombay Soc. xvi.
- Odontocheilopteryx griseata*, Sudan, WARREN, p. 22, Nov. Zool. xii; *O. maculata*, W. Africa, AURIVILLIUS, p. 36, pl. iii, f. 5, Arkiv Zool. ii, No. 12 : n. spp.
- Odontosia?* *viridifusca*, Brit. Guiana, SCHAUS, p. 278, P. U. S. Mus. xxix, n. sp.
- Odorana unica*, Mexico, SCHAUS, p. 199, t. c. n. sp.
- Oiketicus specter*, Venezuela, SCHAUS, p. 344, t. c. n. sp.
- Olceclostera moresca*, *anna*, *lepidia*, p. 296, *oriunda*, *O.?* *ostenta*, *O. umbri-linea*, p. 297, S. America, SCHAUS, t. c. n. spp.

- Olyra rectilineata*, Gazaland, AURIVILLIUS, p. 323, pl. xvi, f. 7, Tr. ent. Soc. London 1905, n. sp.
- Opsarota* n. g. *Lithosiane, fulvinota* n. sp., Cape Colony, HAMPSON, p. 437, Ann. Nat. Hist. (7) xv.
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- Blennina salomonis*, Solomon Ids., SWINHOE, p. 151, op. cit. xvi; *B. metanyceta*, p. 543, *brachyptera*, p. 544, New Guinea, *triphaenopsis*, p. 545, *chlorophila*, *malachitis*, p. 546, Singapore, *miota*, p. 547, *leucotis*, *brunnescens*, p. 548, Trop. Africa, HAMPSON, Ann. Nat. Hist. (7) xvi : n. spp.
- Bocana subalbida*, Batjan, SWINHOE, p. 624, Ann. Nat. Hist. (7) xvi, n. sp.
- Boethantha bisignata* Walk.=(*Ctypansa bocanidia* Butl.), SWINHOE, p. 501, op. cit. xv.
- Bomolocha obductalis*=(*Hypena vestita* Moore), *flexuosa* Moore, is distinct, SWINHOE, p. 502, t. c.
- B. heuloi*, Arizona, SMITH, p. 69, Canad. Ent. 1905, n. sp.
- Borolia leucogramma*, E. Africa, pl. 94, fig. 23, p. 559, *rubrescens*, Natal, p. 94, fig. 25, *citrinotata*, E. Africa, pl. 94, fig. 27, p. 563, *melanostrota*, S. Africa, pl. 94, fig. 28, p. 564, *stellata*, Japan, pl. 94, fig. 30, p. 565, *acrapex*, E. Africa, pl. 95, fig. 3, *stenoptera*, Paraguay, pl. 95, fig. 4, p. 569, *sarcostriga*, Trop. America, pl. 95, fig. 5, p. 570, *rhopotera*, Colombia, pl. 95, fig. 7, p. 571, *phæochroa*, S. Africa, pl. 95, fig. 9, p. 572, *diopis*, Sokotra, pl. 95, fig. 11, p. 573, *persecta*, pl. 95, fig. 12, *micropis*, pl. 95, fig. 14, p. 574, S. Africa, *cupreata*, pl. 95, fig. 15, *bilineata*, fig. 16, Trop. Africa, *sesamoides*, Algeria, fig. 17, p. 575, HAMPSON, Cat. Lep. Phalænæ v, n. spp.
- Brittha biguttata*=(*Hypena colubalis* Feld.), SWINHOE, p. 626, Ann. Nat. Hist. (7) xvi.
- Brotolomia periculosa* ab. n. *interrupta*, WARREN, p. 441, Nov. Zool. xii.
- Bryophilà khasiana*=(*Apamea repetita* Swinh.), SWINHOE, p. 151, Ann. Nat. Hist. (7) xvi.
- B. viridimedia*, Arizona, SMITH, p. 188, J. N. York Ent. Soc. xiii, n. sp.
- Buzara calodesma*, New Guinea, ROTHSCHILD & JORDAN, p. 474, Nov. Zool. xii, n. sp.
- Cacyparis cyclops*, Solomon islds., HAMPSON, p. 604, Ann. Nat. Hist. (7) xvi, n. sp.

- Calocampa vetusta*, larva ab., pl. 1, f. 12, ROUGEMONT, Bull. Soc. Neuchatel xxix.
- Calophasia albolineata*, Tunis, BLACHIER, p. 53, Bull. Soc. ent. France 1905; *C. adamantina*, Marocco, BLACHIER, p. 215, t. c. n. sp.
- Caradrina respersa*, larva, pl. ii, f. 4, *alsines*, larva, pl. ii, f. 5, *gluteasa*, larva, f. 6, ROUGEMONT, Bull. Soc. Neuchatel xxix.
- C. pretexta*, Khasia Hills, SWINHOE, p. 152, Ann. Nat. Hist. (7) xv, n. sp.
- Cardepia* n. g. type *Mamestra irrisor*, HAMPSON, p. 234, Cat. Lep. Phalænæ v.
- C. dione*, Khasia Hills, SWINHOE, p. 159, Ann. Nat. Hist. (7) xv; *C. acyptera*, Bali, p. 593, *tumida*, Penang, *diprogramma*, p. 594, *holophæa*, *biviata*, p. 595, Malacca, *endophæa*, Travancore, *pallida*, Burma, *leucocraspis*, Borneo, p. 596, *rubrifusa*, Borneo, *auritincta*, p. 597, *gamma*, *meta-leuca*, Trop. Africa, *mesoausta*, Borneo, p. 598, *albipicta*, Fiji, p. 599, HAMPSON, Ann. Nat. Hist. (7) xvi : n. spp.
- Catabena begallo*, Arizona, BARNES, p. 193, Canad. Ent. 1905, n. sp.
- Catada sabada*, Perak, SWINHOE, p. 162, Ann. Nat. Hist. (7) xv, n. sp.
- Catephiodes* n. g. for *Hadena zuelana* Schaus, HAMPSON, p. 36, Cat. Lep. Phalænæ v.
- Catocala elocata* var. *styx*, KOLLER, p. 4, pl. i, f. 1, Jahresber. Wien. ent. Ver. 1905; *C.*, coloration of hind wing *œtiology*, SCHRÖDER, pp. 51-63, Biol. Zentrbl. xxv.
- Cerynea rubra*, Borneo, SWINHOE, p. 154, Ann. Nat. Hist. (7) xv, n. sp.
- Chabuata amæba*, E. Africa, pl. 85, f. 15, p. 269, *rectilinea*, Argentina, pl. 85, f. 20, p. 273, *noctuiformis*, Brazil, pl. 90, f. 3, p. 274, HAMPSON, Cat. Lep. Phalænæ v, n. spp.
- Chandica semiflava*, Borneo, HAMPSON, p. 603, Ann. Nat. Hist. (7) xvi, n. spp.
- Cimelia olga*, BARTEL, p. 25, Soc. ent. xx.
- Cirphis lasiomera*, Java, pl. 92, fig. 3, *ptyonophora*, St Helena, pl. 91, fig. 27, p. 491, *dasuta*, Hawaii, p. 493, *polyrabda*, Natal, pl. 92, fig. 13, p. 507, *goniosigma*, Ceylon, pl. 92, fig. 14, p. 515, *ignita*, Assam, pl. 92, fig. 18, p. 517, *pyrastis*, Paraguay, pl. 92, fig. 19, p. 518, *diagramma*, New Guinea, pl. 96, fig. 15, p. 522, *atrinota*, Mashonaland, pl. 92, fig. 25, p. 523, *albifasciata*, Paraguay, pl. 92, fig. 28, p. 525, *sarcistis*, Costa Rica, pl. 93, fig. 2, p. 527, *sarcophæa*, Peru, pl. 93, fig. 4, p. 528, *polystrota*, S. America, pl. 93, fig. 6, *microsticha*, Centr. America, pl. 93, fig. 7, *megaproctis*, Ceylon, pl. 93, fig. 10, p. 532, *microgonia*, Cent. America, pl. 93, fig. 11, p. 533, *postica*, Japan, pl. 96, fig. 12, p. 535, *alboradiata*, Patagonia, pl. 93, fig. 15, p. 537, *leucosticha*, Mauritius, p. 541, *tritonis*, Colombia, pl. 93, fig. 21, p. 542, *crenulata*, Persian Gulf, pl. 93, fig. 29, p. 547, *pastea*, Assam, pl. 96, fig. 13, p. 550, *metaphæa*, Madras, pl. 93, fig. 32, *hypophæa*, Ceylon, pl. 94, fig. 14, *ruberisecta*, Bhután, pl. 94, fig. 15, p. 533, HAMPSON, Cat. Lep. Phalænæ v, n. spp.
- Cleophana pauli*, pl. xix, fig. 11, *diffuens* var. *maroccanæ*, fig. 12, MEADE-WALDÖ, Tr. ent. Soc. London 1905.
- C. gafsa*, Tunis, BLACHIER, p. 53, Bull. Soc. ent. France 1905, n. sp.
- Conisania* n. g. for *Noctua leineri* Frr., HAMPSON, p. 472, Cat. Lep. Phalænæ v.
- Conochares* n. g. near *Acontia*, *C. acutus*, p. 207, *interruptus*, p. 208, n. spp., Arizona, SMITH, J. N. York Ent. Soc. xiii.
- Cosmophila excavata*, Borneo, SWINHOE, Ann. Nat. Hist. (7) xv, n. sp.
- Crambodes abalas*, Arizona, SMITH, p. 205, J. N. York Ent. Soc. xiii, n. sp.
- Craterestra* n. g. p. 17, type *Stibara lucina*, *C. subterminata*, Sikkim, pl. 88, fig. 31, *semifusca*, Uganda, pl. 36, fig. 2, n. spp., HAMPSON, Cat. Lep. Phalænæ v.
- Cucullia arizona*, Arizona, SMITH, p. 206, J. N. York Ent. Soc. xiii, n. sp.

- Dasygaster nephilistis*, S. Australia, pl. 91, fig. 14, p. 475, HAMPSON, Cat. Lep. Phalaenæ v.
- Delocoma* n. g. near *Azazia*, *marmorea* n. sp., Celebes, SWINHOE, p. 153, Ann. Nat. Hist. (7) xvi.
- Dichonia apricina* var. n. *bouveti*, LUCAS, p. 51, pl. v, figg. 2, 3, Ann. Soc. ent. France 1905; *D. convergens*, larva, pl. 1, fig. 9, ROUGEMONT, Bull. Soc. Neuchatel xxix.
- Dilophothripa olivia*, Borneo, HAMPSON, p. 584, Ann. Nat. Hist. (7) xvi, n. sp.
- Discestra* n. g. p. 14, type *Mamestra florida*, *D. arenaria* n. sp., Sind, p. 16, HAMPSON, p. 14, Cat. Lep. Phalaenæ v.
- Ectopatria virginea*, Adelaide, LOWER, p. 173, Tr. R. Soc. S. Austral. xxix, n. sp.
- Egnasia rudmuna*, Borneo, SWINHOE, p. 623, Ann. Nat. Hist. (7) xvi, n. sp.
- Elæognatha* n. g. *argyritis*, p. 577, *phæostrota*, p. 578, Panama, n. spp., HAMPSON, Ann. Nat. Hist. (7) xvi.
- Episilia gaudens*, Java, HAMPSON, p. 450, op. cit. xv, n. sp.
- Epizexus merricki*, Chicago, SMITH, p. 260, Canad. Ent. 1905, n. sp.
- Erastria crotapha*, Khasia Hills, SWINHOE, p. 620, Ann. Nat. Hist. (7) xvi, n. sp.
- Eriopyga fulvida*, Brazil, *thermistis*, Colombia, DRUCE, p. 374, Ann. Nat. Hist. (7) xv; *E. perfusca*, Mexico, pl. 86, fig. 30, p. 297, *melanopsis*, Arizona, pl. 86, fig. 31, p. 299, *rhodotrichia*, p. 309, *fuscibarbata*, p. 310, Brazil, *vinobarbata*, pl. xc, fig. 5, p. 311, *excavata*, pl. 87, fig. 10, p. 312, *fulvida*, pl. 94, fig. 6, p. 316, Brazil, *orbica*, Mexico, pl. 87, fig. 13, p. 318, *jamaicensis*, Jamaica, pl. 87, fig. 16, p. 321, *brachia*, p. 322, *subolivacea*, p. 325, *melanosticta*, pl. 87, fig. 18, p. 326, *glaucistis*, pl. 87, fig. 22, p. 331, Brazil, *lobata*, Costa Rica, p. 332, *mesostrigata*, pl. 87, fig. 24, p. 333, *confluens*, p. 338, *pyropis*, pl. 87, fig. 31, p. 342, Centr. America, *hyposcota*, Brazil, pl. 90, fig. 6, p. 349, *affurata*, Canada, pl. 88, fig. 8, p. 350, *thermistis*, Colombia, pl. 94, fig. 8, p. 351, *poliotis*, Ecuador, pl. 88, fig. 10, p. 352, HAMPSON, Cat. Lep. Phalaenæ v; *E. fuliginosa*, Japan, pl. 96, fig. 14, p. 609, HAMPSON, t. c. : n. spp.
- Eriopygodes* n. g. type *Noctua imbecilla* Fabr., HAMPSON, p. 353, t. c.
- Erizada semifervens* Walk. (as *Gadirtha*)=(*lichenaria* Walk.=*Tinosoma hyperythrum* Hamps.), SWINHOE, p. 152, Ann. Nat. Hist. (7) xvi.
- E. rufa*, Sula, HAMPSON, p. 586, Ann. Nat. Hist. (7) xvi, n. sp.
- Eublemma scitula*, ♂, pl. iv, fig. 29, p. 25, ROTHSCHILD, Nov. Zool. xii.
- E. atimeta*, Sumatra, SWINHOE, p. 621, Ann. Nat. Hist. (7) xvi, n. sp.
- Eucalyptera gigantea*, Texas, SMITH, p. 67, Canad. Ent. 1905, n. sp.
- Eucocytia meeki*, New Guinea, ROTHSCHILD & JORDAN, p. 474, Nov. Zool. xii, n. sp.
- Euplexia signata*, Tasmania, LOWER, p. 173, Tr. R. Soc. S. Austral. xxix, n. sp.
- Eutelia chrysoterminalis*, Cayenne, p. 372, *caustiplaga*, Cuba, p. 373, *pyrastis*, Florida, *leucographa*, Africa, p. 374, *diplographa*, Sikkim, p. 375, *mesogona*, Madagascar, p. 376, *geraea*, Mauritius, *flaviluna*, p. 377, *farcicauda*, Singapore, *cautabasis*, p. 378, *holocausta*, *metasarca*, p. 379, *melanopsis*, p. 380, *chlorobasis*, *nigridentula*, p. 381, *albiluna*, *leucodelta*, p. 382, *ochricostata*, p. 383, *ferridorsata*, *cyanolopha*, p. 384, W. Africa, *albidisca*, Cape Colony, *rufula*, Perak, p. 385, *siccata*, Sierra Leone, p. 386, HAMPSON, Ann. Nat. Hist. (7) xvi, n. spp.
- Euxoa emolliens* n. n. for *mollis* Staud. nec Walk., HAMPSON, p. 540, op. cit. xv; *E. brunneigera masoni* var. n., COCKERELL, p. 361, Canad. Ent. 1905.
- E. sotnia*, p. 195, *alcesta*, *anacosta*, p. 196, *biaiba*, p. 197, *zembla*, p. 198,

- N. America, SMITH, J. N. York Ent. Soc. xiii; *E. vestitura*, New Brunswick, p. 201, *taura*, Assiniboia, p. 202, *ura*, Utah, p. 203, SMITH, Canad. Ent. 1905 : n. spp.
- Falcimala diacia*, Khasia Hills, SWINHOE, p. 163, Ann. Nat. Hist. (7) xv, n. sp.
- Fishia betsia*, Utah, SMITH, p. 199, J. N. York Ent. Soc. xiii, n. sp.
- Galasa pulverulenta*, Sudan, WARREN & ROTHSCHILD, p. 26, pl. iv, fig. 34, Nov. Zool. xii, n. sp.
- Giaura leucophaea*, Borneo, p. 541, *nigriscripta*, E. Africa, *strigivenata*, New South Wales, p. 542, *lichenigera*, Sierra Leone, India etc. p. 543, HAMPSON, Ann. Nat. Hist. (7) xvi, n. spp.
- Gortyna ochracea*, notes on rearing, HARRISON, p. 15, Ent. Rec. xvii ; *G.*, synonymy of N. American, LYMAN, pp. 29-32, Canad. Ent. 1905.
- G. thalictri*, p. 307, pl. vii, fig. 2, *eupatorii*, p. 312, fig. 3, Canada, LYMAN, t. c. n. spp.
- Graphania* n. g. type *Heliophobus disjungens* Walk., HAMPSON, p. 468, Cat. Lep. Phalænæ v.
- Gyrtona niveivitta*, Sarawak, SWINHOE, p. 158, Anu. Nat. Hist. (7) xv ; *G. dialeuca*, Borneo, *pheozona*, India, p. 537, *glaucobasis*, Pulo Laut, *chlorographa*, Singapore, *plumbisparsa*, Sikkim, p. 538, *polionota*, Woodlark isld., *polymorpha*, Mauritius, p. 539, HAMPSON, Ann. Nat. Hist. (7) xvi : n. spp.
- Hadena adusta* var. *bathensis* etc., species formation, PETERSEN, Arch. Rassen ii, pp. 641 etc.; *H. polyodon* ab. *infuscata*, pl. 1, fig. 10, *basilinea*, larva, pl. ii, fig. 1, *hepatica*, larva, fig. 2, *illyrica*, larva, fig. 3, ROUGEMONT, Bull. Soc. Neuchatell. xxix; *H. secalis* ab. *struvei*, pl. ii, fig. 12, MÖBIUS, Iris Dresden xviii ; *H. secalis*, larval structure, injuries to corn, BÖRNER, pp. 90-97, Arb. biol. Anstalt Forstwirtschaft v.
- H. bathensis*, Lutzau n. sp., SLEVOGT, p. 18, Soc. ent. xx ; *H. erica*, Utah, SMITH, p. 258, Canad. Ent. 1905 ; *H. eleastis*, Peru, DRUCE, p. 373, Ann. Nat. Hist. (7) xv ; *H. meridionalis*, Rio Janeiro, HAMPSON, p. 211, pl. 84, fig. 11, Cat. Lep. Phalænæ v : n. spp.
- Hadula impia*, Turkestan, pl. 92, fig. 2, p. 248, HAMPSON, t. c. n. sp.
- Nephelistis* n. g. type *congenitalis* n. sp., Guatemala, HAMPSON, p. 250, t. c.
- Harrisimemna trisignata*, pupation, SHERMAN, p. 254, Ent. News Philad. xvi.
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- Homopyralis cinctus*, Arizona, SMITH, p. 260, Canad. Ent. 1905, n. sp.
- Hydroeciodes* n. g. p. 253, type *Xanthia alala*, *H. xanthina*, p. 254, *azteca*, p. 256, pl. 85, fig. 5, Mexico, *leucopis*, Peru, pl. 92, fig. 1, *leucogramma*, Brazil, pl. 85, fig. 7, p. 257, n. spp., HAMPSON, Cat. Lep. Phalænæ v.
- Hylophila prasinana* abb., pl. ii, figs. 2, 3, MÖBIUS, Iris Dresden xviii.
- Hypatra ruinosa*, Singapore etc., p. 159, *trifasciata*, New Guinea, p. 160, SWINHOE, Ann. Nat. Hist. (7) xv, n. spp.
- Hypena regia*, p. 163, *tylistalis*, New Guinea, *phecomalis*, Khasia Hills, p. 164, SWINHOE, t. c. n. spp.
- Hypenula caminalis*, Arizona, SMITH, p. 70, Canad. Ent. 1905, n. sp.
- Hypobarathra* n. g. for part of *Xylina*, HAMPSON, p. 221, Cat. Lep. Phalænæ v.
- Hypothenipa ruficirra*, Japan, *miochroa*, Colombia, HAMPSON, p. 540, Ann. Nat. Hist. (7) xvi, n. spp.
- Hyssia sminthistis*, New Zealand, pl. 86, fig. 17, p. 280, *violascens*, China, pl. 85, fig. 28, p. 286, HAMPSON, Cat. Lep. Phalænæ v, n. spp.
- Ingura glauca*, p. 369, *griseifusa*, S. America, *nyctichroma*, Panama, p. 370,

- leucotrigona*, Borneo, *poliotis*, Singapore, p. 371, HAMPSON, Ann. Nat. Hist. (7) xvi, **n. spp.**
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- Labanda viridalis*, Khasia Hills, SWINHOE, p. 156, Ann. Nat. Hist. (7) xv, **n. sp.**
- Laphygma exigua* in England, early stages, MATHEW, pp. 6–10, Ent. Rec. xvii.
- Lasianobia* n. g. type *Mamestra lauta*, HAMPSON, p. 274, Cat. Lep. Phalænæ v.
- Lasiestra* n. g. type *Dianthoecia phoca*, HAMPSON, p. 47, t. c.
- Lasionycta altaica*, W. Siberia, HAMPSON, p. 58, pl. 79, fig. 30, t. c. **n. sp.**
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- Lignicida* n. g. *Deltoididæ*, *echana* n. sp., Palawan, SWINHOE, p. 625, Ann. Nat. Hist. (7) xvi.
- Luperina zollikoferi*, notice, REBEL, pp. 21, 22, Verh. Ges. Wien 1905.
- L. extensa*, Regina, SMITH, p. 203, J. N. York Ent. Soc. xiii, **n. sp.**
- Lycophotia tetraonis*, Peru, DRUCE, p. 372, Ann. Nat. Hist. (7) xv; *L. strigigrapha*, Patagon. Andes, HAMPSON, p. 451, Ann. Nat. Hist. (7) xv : **n. spp.**
- Lyptrodes semiluna*, Arizona, SMITH, p. 67, Canad. Ent. 1905, **n. sp.**
- Maliattha marginalis* Walk. (as *Acontia*)=(*stolosa* Swinh.), SWINHOE, p. 151, Ann. Nat. Hist. (7) xvi.
- M. stolosa*, Khasia Hills, SWINHOE, p. 154, op. cit. xv, **n. sp.**
- Mamestra (Hadula) impia*, Aksu, PÜNGELER, p. 153, Soc. ent. xix; *M. ascula*, Utah, SMITH, p. 257, Canad. Ent. 1905; *M. tufa*, *agnata*, p. 200, *basiplaga*, *imbuna*, p. 201, *uliginosa*, p. 202, N. America, SMITH, J. N. York Ent. Soc. xiii; *M. albifluvialis*, Colombia, p. 372, *canosticta*, Bolivia, p. 373, DRUCE, Ann. Nat. Hist. (7) xv : **n. spp.**
- Masca abactalis* and *Phagytira leucogastralis* Walk. distinguished, SWINHOE, p. 622, Ann. Nat. Hist. (7) xvi.
- Maurilia albirivula*, p. 599, *heterochroa*, *phœa*, p. 600, Nigeria, HAMPSON, Ann. Nat. Hist. (7) xvi, **n. sp.**
- Melanchra granti*, Azores, WARREN, p. 440, Nov. Zool. xii; *M. decorata*, p. 328, pl. xx, fig. 2, *levis*, fig. 4, p. 329, New Zealand, PHILPOTT, Tr. New Zealand Inst. xxxvii : **n. spp.**
- Meliania pectinata*, E. Africa, p. 576, *longipennis*, Centr. Africa, pl. 95, fig. 18, p. 578, *atrifera*, Chile, pl. 95, fig. 19, p. 580, *tenebra*, E. Africa, pl. 95, fig. 30, p. 587, *rubra*, Brazil, pl. 95, fig. 32, HAMPSON, Cat. Lep. Phalænæ v, **n. spp.**
- Melicleptria fimbria*, California, WILLIAMS, p. 237, Ent. News Philad. xvi, **n. sp.**
- Metachrostis brunneiplaga*, Khasia Hills, SWINHOE, p. 500, Ann. Nat. Hist. (7) xv, **n. sp.**
- Metaptyta lucida*, Bali, HAMPSON, p. 587, Ann. Nat. Hist. (7) xvi, **n. sp.**
- Minofala* n. g. *instans* n. sp., Texas, SMITH, p. 65, Canad. Ent. 1905.
- Monima paromœa*, Japan, pl. 90, fig. 26, p. 429, HAMPSON, Cat. Lep. Phalænæ v, **n. sp.**

- Morrisonia chryserythra, chlorograpta*, New Zealand, HAMPSON, p. 452, Ann. Nat. Hist. (7) xv, n. spp.
Nanaguna aquisooides, Khasia Hills, SWINHOE, p. 156, Ann. Nat. Hist. (7) xv; *N. brunnea, albisepta*, Assam, HAMPSON, p. 583, op. cit. xvi : n. spp.
Neocomia n. g. for *Amphipyra satinea*, ROUGEMONT, p. 372, Bull. Soc. Neuchatel xxix, and op. cit. xxxi, pl. i, figg. 11, a, b, c.
Nephelitis conservulodes, Colombia, DRUCE, p. 374, Ann. Nat. Hist. (7) xv, n. sp.
Niguza anisogramma, Centr. Australia, LOWER, p. 174, Tr. R. Soc. S. Austral. xxix, n. sp.
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Odontelia n. g. for *Thargelia margiana*, HAMPSON, p. 219, Cat. Lep. Phalænæ v.
Odontestra n. g. p. 205, type *Mamestra vittigeræ*, *O. albivitta* n. sp., E. Africa, p. 206, pl. 84, fig. 6, HAMPSON, t. c.
Odontodes metamelæna, New Guinea, HAMPSON, p. 533, Ann. Nat. Hist. (7) xvi, n. sp.
Oncocnemis bakeri, Nevada, DYAR, p. 211, J. N. York Ent. Soc. xiii, n. sp.
Onychestra n. g. for *Mamestra siccatorum*, HAMPSON, p. 223, Cat. Lep. Phalænæ v.
Oromena noduna, Ceylon, SWINHOE, p. 152, Ann. Nat. Hist. (7) xvi, n. sp.
Orrhodia torrida ab. *faille*, p. 39, pl. vi, fig. 17, *O. ragusea*, pl. vi, figg. 11, 12, p. 41, TURATI, Natural. Sicil. xviii.
O. insinuata, Washington, SMITH, p. 205, J. N. York Ent. Soc. xiii, n. sp.
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GEOMETRIDÆ.

[Cf. BASTELBERGER (80–83), BETHUNE-BAKER (108), DRAUDT (450), DYAR (470, 474, 476), FUCHS (624), HUDSON (794), JORDAN (823), KAYE (828), LONGSTAFF (974), LOWER (981), MEYRICK (1041), PEARSALL (1142), PETERSEN (1155), PHILPOTT (1167), PROUT (1217, 1218), PUNGELER (1224), ROTHSCHILD & JORDAN (1307), SWINHOE (1459, 1460, 1462), THIERRY-MIEG (1493), TURATI (1508), VÁZQUEZ (1535), WARREN (1569–1575), WARREN & ROTHSCHILD (1576).]

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Actenochroma ochreipicta, Khasia Hills, SWINHOE, p. 166, Ann. Nat. Hist. (7) xv, n. sp.

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Agraptochlora analiplaga, E. Africa, WARREN, p. 384, t. c. n. sp.

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Anemplocia n. g. *Heterusiinae*, *flammifera* n. sp., Colombia, WARREN, p. 344, t. c.

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A. simulatrix, Cayenne, THIERRY-MIEG, p. 193, Naturaliste 1905, n. sp.

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A. ruficosta, Brit. Guiana, WARREN, p. 45, t. c. n. sp.

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Antepirrhoë n. g. type *E. delimitata* Warr., includes *Larentia homophana* and *latifusata*, also *A. vacillans* n. sp., Bolivia, WARREN, p. 327, t. c.

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Ascotis margarita = (*Blepharoctenucha albescens* Warr.), WARREN, p. 432, t. c.
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A. fulvata, Sta. Martha, WARREN, p. 65, t. c.; *A. geminipuncta*, Peru,
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Bagodares pallidicosta, Ecuador, WARREN, p. 358, t. c. n. sp.
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Bulonga trilineata, Borneo, BASTELBERGER, p. 5, Ent. Zeitschr. Guben xix.
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Cambogia trillista, Peru, WARREN, p. 51, t. c. n. sp.
Campylona aurata, Bogota, WARREN, p. 312, t. c. n. sp.
Cartaletis concolor, Zululand, WARREN, p. 34, t. c. n. sp.
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Catoria lucidata, Solomon Islds., WARREN, p. 15, t. c.; *C. subalbata*,
 Sumatra, WARREN, p. 432, t. c. : n. spp.
Certima strigifera, Peru, WARREN, p. 66, t. c.; *C. leucaniata*, Peru,
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Chlorochroma quieta Luc. (as *Iodis*) = (*Cenochlora felix* Warr.), WARREN,
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C. imparicornis, Queensland, WARREN, p. 422, t. c. n. sp.
Chloroclystis sandycias, New Zealand, MEYRICK, p. 220, Tr. ent. Soc.
 London 1905; *C. minima*, New Zealand, HUDSON, p. 356, Tr. New
 Zealand Inst. xxxvii : n. spp.
Chogada alienaria ab. n. *nigrifasciata*, *C. decisaria* ab. n. *nigristigma*,
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Derambila = (*Rambara* Moore, and ? *Chionopteryx* Snell.), WARREN, p. 382, t. c.
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Diastictis festa Hulst, validity of, TAYLOR, p. 62, Canad. Ent. 1905.
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Dirades unicauda, sex distinctions, DUDGEON, p. 404, J. Bombay Soc. xvi.
Dysphania, synonymous notes and varr. n., BASTELBERGER, pp. 201–224, Stettin Ent. Zeit. lxvi; *D. cyanea*, *flavimargo* is distinct, WARREN, p. 440, Nov. Zool. xii.
D. interrupta, Sumatra, p. 206, *nigrostriata*, Borneo, p. 211, *goramensis*, Goram, p. 214, *splendida*, Cooktown, p. 216, *sericata*, Sumatra, p. 219, BASTELBERGER, Stettin Ent. Zeit. lxvi; *D. azurea*, p. 115, *cancellata*, N. Borneo, *peregrina*, Obi, p. 116, BASTELBERGER, Ent. Zeitschr. Guben xviii : n. spp.
Ectropis (Tephrosia) consonaria, ab. n. *nigra*, BANKES, p. 89, Ent. Mag. 1905.

- E. inelegans*, Niger, WARREN, p. 398, Nov. Zool. xii, n. sp.
- Emmiltis bisinuata*, Angola, p. 388, *cervinata*, W. Africa, *khakiata*, Natal, p. 389, WARREN, Nov. Zool. xii; *E. elyra*, Kashmir, SWINHOE, p. 628, Ann. Nat. Hist. (7) xvi; *E. placida*, *plenistigma*, Solomon Ids., WARREN, p. 423, t. c.; *E. malepicta*, Peru, WARREN, p. 46, t. c.; *E. inquinatula*, Peru, p. 321, *ochratipennis*, Venezuela, p. 322, WARREN, t. c. n. spp.
- Enconista oberthuri*, Madrid, VÁZQUEZ, p. 119, Bol. Soc. espan. v, n. sp.
- Entephria* (= *Glaucopsyche*) *ochribasis*, Argentina, WARREN, p. 333, Nov. Zool. xii.
- Ephemerophilia penumbrata*, Sierra Leone, WARREN, p. 395, t. c. n. sp.
- Ephialtias aperta*, Peru, *dorsispilota*, p. 313, *repetita*, Colombia, *percurrens*, Peru, p. 314, WARREN, t. c. n. spp.
- Epiplema asinina*, p. 380, *fumigera*, Natal, *subdistincta*, Sierra Leone, p. 381, WARREN, t. c.; *E. brunnea*, Obi, p. 411, *catenigera*, *cretistriga*, Solomon Ids., *exsanguis*, Hainan, p. 412, *guttata*, *lignicolor*, Solomon Ids., p. 413, *nigropustulata*, Obi, *umbrimargo*, p. 414, *ustanalis*, Solomon Ids., *ustiplaga*, Hainan, p. 414, *vacuata*, Solomon Ids., *vinculata*, N. Guinea, p. 416, WARREN, t. c.; *E. pacicularia*, Sumatra, SWINHOE, p. 626, Ann. Nat. Hist. (7) xvi; *E. triangulifera*, Solomon Ids., WARREN, p. 8, Nov. Zool. xii; *E. rotundata*, Paraguay, WARREN, p. 307, t. c. : n. spp.
- Erateina albiradiata*, Bolivia, p. 344, *hyaloplagia*, Peru, p. 345, WARREN, t. c. n. sp.
- Ereboclytia albistrota*, Peru, WARREN, p. 331, t. c. n. sp.
- Eriopygidia subrubescens*, Peru, WARREN, p. 332, t. c. n. sp.
- Erosia veninotata*, Costa Rica, WARREN, p. 42, t. c. n. sp.
- Euchlora astylusaria*, life-history, DYAR, p. 43, Psyche xii.
- Euchloris dissimilis*, Sudan, WARREN & ROTHSCHILD, p. 26, pl. iv, fig. 27, Nov. Zool. xii, n. sp.
- Euchoea comptaria*, synonymy, TAYLOR, p. 411, Canad. Ent. 1905.
- E. salienta*, N. America, PEARSALL, p. 126, Canad. Ent. 1905, n. sp.
- Euclysia ochrivitta*, Bolivia, WARREN, p. 369, Nov. Zool. xii, n. sp.
- Eucrostes undulilinea*, Sierra Leone, WARREN, p. 384, t. c. n. sp.
- Eucymatoge versiplaga*, Peru, WARREN, p. 339, t. c. n. sp.
- Eudule flavinota* ab. n. *nigrata*, WARREN, p. 342, t. c.
- E. annuligera*, La Merced, *dioptoides*, Costa Rica, p. 341, *plurinotata*, Bolivia, *rufithorax*, Colombia, p. 342, WARREN, t. c. n. spp.
- Eumacrodex* n. g. near *Ptychopoda*, *gracilis* n. sp., Venezuela, WARREN, p. 322, t. c.
- Eumelea albimacula* Warr. to *Desmobathra*, WARREN, p. 419, t. c.
- E. inflata*, Solomon Ids., p. 417, *phenissa*, Obi, p. 418, WARREN, t. c. n. spp.
- Eumera regina*, early stages, REBEL, p. 398, Verh. Ges. Wien 1905.
- Euomaea ochrea*, Natal, WARREN, p. 409, Nov. Zool. xii, n. sp.
- Eupileta* n. g. *Fidoniina hirsuta* n. sp., Tijuco, WARREN, p. 362, t. c.
- Eupithecia rigida* Swinh. to *Eucymatoge*, WARREN, p. 425, t. c.; *E. interruptofasciata*, larva, FLETCHER & GIBSON, p. 262, Canad. Ent. 1905; *E. sinuosaria*, larva, DRAUDT, p. 259, pl. v, figg. 4-9, Iris Dresden xvii.
- Eurythecodes finosa*, Sierra Leone, WARREN, p. 38, Nov. Zool. xii, n. sp.
- Euschema malayaria* var. n. *paupera*, *E. remota* var. n. *auctata*, *albimacula*, THIERRY-MIEG, p. 181, Naturaliste 1905. Cf. also *Pareuschema*.
- E. auriplena*, Waigiou, THIERRY-MIEG, p. 181, t. c. n. sp.
- Eutomopepla albicollaris*, Peru, WARREN, p. 369, Nov. Zool. xii, n. sp.
- Exelis ansorgei*, Niger Coast, WARREN, p. 409, t. c. n. sp.
- Gathynia biocellata*, Peru, WARREN, p. 308, t. c. n. sp.
- Geitonia* n. g. near *Anisoperas*, *gracilinea* n. sp., Chiriquí, WARREN, p. 370, t. c.

- Gelasma clemens*, Ecuador, WARREN, p. 317, t. c. n. sp.
Geometra papilionaria varr. and larva, BURROWS, pp. 200–205, 221–227, pl. viii, Ent. Rec. xvii.
Gonanticlea deleta, New Guinea, WARREN, p. 11, Nov. Zool. xii, n. sp.
Gonodela subcretata, Uganda, WARREN, p. 37, t. c.; *G. apicepallens*, p. 401, *lunivallata*, *punctiversa*, p. 402, *rectilinea*, *unicolor*, p. 403, Africa, WARREN, t. c.; *G. semilutea*, Shan States, WARREN, p. 434, t. c. : n. spp.
Gullaca exilis, Assam, BASTELBERGER, p. 5, Ent. Zeitschr. Guben xix; *G. derasata*, Madagascar, BASTELBERGER, p. 77, t. c. : n. spp.
Gymnoplozia n. g. for *Epiplema parvidens* Dogn., WARREN, p. 42, Nov. Zool. xii.
Gynopteryx ligulifera, Parana, WARREN, p. 370, Nov. Zool. xii, n. sp.
Hæmalea griseascens, Peru, WARREN, p. 46, Nov. Zool. xii; *H. brunneata*, Colombia, p. 322, *rufifimbria*, Peru, p. 323, WARREN, t. c. : n. spp.
Haggardia spissata, *subalbata*, Natal, WARREN, p. 396, t. c. n. spp.
Hammaptera dispansa, Sta. Martha, *fumida*, Peru, WARREN, p. 47, t. c. n. spp.
Hemiplipsis immaculata, Grenada, WARREN, p. 352, P. U. S. Mus. xxix, n. sp.
Herbita castanea, Costa Rica, WARREN, p. 371, Nov. Zool. xii, n. sp.
Heterophyra duplicita, Colombia, WARREN, p. 323, t. c. n. sp.
Heteroplasta lasioplaca Lower, to *Polydysta*, BASTELBERGER, p. 22, Ent. Zeitschr. Guben xix.
Heterusia ovaliplaga, Peru, WARREN, p. 53, Nov. Zool. xii; *H. cæcata*, Peru, WARREN, p. 345, t. c. : n. spp.
Hirasa denticulata to *Hirasodes*, WARREN, p. 396, t. c.
Holorista dentatilinea, Solomon Ids., WARREN, p. 428, t. c. n. sp.
Homospora rhodoscopa Low. (as *Onychodes*)=(*procrita* Turn.), LOWER, p. 178, Tr. R. Soc. S. Austral. xxix.
Hyalopola marginata, Peru, WARREN, p. 56, Nov. Zool. xii, n. sp.
Hydrochroma ? cervinata, Colombia, WARREN, p. 371, t. c. n. sp.
Hylemera subfulva, Sierra Leone, WARREN, p. 395, t. c. n. sp.
Hypedyle divisa, Peru, WARREN, p. 43, t. c. n. sp.
Hypocæla uniformis, Uganda, WARREN, p. 385, t. c. n. sp.
Hypolepis fulva, *fuscata*, Peru, WARREN, p. 48, t. c. n. spp.
Hypopracta n. g. *Ænochrominae*, *persimilis* n. sp., East Africa, WARREN, p. 382, t. c.
Hyposidra leprosata, Uganda, WARREN, p. 38, t. c.; *H. rauca*, *vittata*, Cagayan Sulu, WARREN, p. 437, t. c. : n. spp.
Hyrmyna protecta, Brit. Guiana, KAYE, p. 121, pl. iii, fig. 8, Ent. Rec. xvii, n. sp.
Ira capnodiata ab. n. *reducta*, WARREN, p. 372, Nov. Zool. xii.
I. crenulata, Peru, WARREN, p. 372, t. c. n. sp.
Iridopsis grisescens, Quito, *subnigrata*, Peru, WARREN, p. 355, t. c. n. spp.
Ischnopteris conjungens, p. 59, *projectata*, p. 60, Peru, WARREN, t. c.; *I. brunneoviridis*, p. 359, *degener*, p. 360, Peru, WARREN, t. c. : n. spp.
Isochromodes denotata, distinct not var. of *auxilians*, WARREN, p. 372, t. c.
I. straminea, p. 67, *turbinata*, p. 68, Peru, WARREN, t. c. n. spp.
Iulocera n. g. type *Azata variegata* Warr., *I. albiapicata* n. sp., Halmahera, WARREN, p. 434, t. c.
Iza mediovincta, Amazons, WARREN, p. 307, t. c. n. sp.
Josia radians, Sta. Marta, WARREN, p. 44, t. c.; *J. turgida*, with ab. n. *conifera*, Venezuela, WARREN, p. 314, t. c. : n. spp.
Larentia sordidata and *autumnalis*, sexual differences, PETERSEN, p. 73, cuts, Mem. Ac. St. Petersb. (8) xvi, No. 2; *L. multistrigaria*, melanism, MORLEY, pp. 170, 171, Ent. Rec. xvii.

- L. eximiata*, Rhine, FUCHS, Ent. Zeitschr. Guben xviii, No. 32, Beilage;
L. rewaensis, Fiji, pl. viii, fig. 7, p. 94, BETHUNE-BAKER, P. Zool. Soc.
 London 1905, i : n. spp.
- Lasiopates* n. g. *Mecoceratinæ*, p. 310, *hyacinthina* n. sp., Ecuador, p. 311,
 WARREN, Nov. Zool. xii.
- Lasiophanes* n. g. near *Perizoma*, *rufisticta* n. sp., Peru, WARREN,
 p. 333, t. c.
- Leptaletis variabilis* ab. n. *ampliflava*, WARREN, p. 383, t. c.
- Leptesthes circumflexaria* = (*Hyposidra megaspila* Moore, Hamps.),
 SWINHOE, p. 627, Ann. Nat. Hist. (7) xvi.
- Leptomeris quinquelinearia*, life-history, DYAR, p. 93, Psyche xii.
- Leucodesmia confusa*, Ceylon, WARREN, p. 422, Nov. Zool. xii, n. sp.
- Leucula meganira* ab. n. *astigma*, WARREN, p. 350, t. c.
- Lignyoptera thaumastaria* ♀, REBEL, p. 23, Verh. Ges. Wien 1905.
- Lipocentris* n. g. near *Emmiltis*, *rubriceps* n. sp., Angola, WARREN, p. 389,
 Nov. Zool. xii.
- Lipomelia rubicunda*, TRINIDAD, WARREN, p. 324, t. c. n. sp.
- Lisomma* n. g. near *Hypographa himerata* n. sp., S. Australia, and includes
Monocentias minutia Swinh., WARREN, p. 418, t. c.
- Lissochlora intacta*, Dominica, WARREN, p. 318, t. c. n. sp.
- Lissopsis margarita*, Peru, WARREN, p. 343, t. c. n. sp.
- Lomaspilis casta*, Transvaal, WARREN, p. 35, t. c. n. sp.
- Lomographa extremata*, Peru, WARREN, p. 53, t. c.; *L. inæquata*, p. 348,
 venata, p. 349, Peru, WARREN, t. c. : n. spp.
- Loxapicia cognata*, Peru, WARREN, p. 68, t. c. n. sp.
- Loxotephria* n. g. *Semiothisinæ*, p. 13, *olivacea*, n. sp., p. 14, Hainan,
 WARREN, t. c.
- Lythria purpuraria cruentaria*, DEMAISON, p. 255, Bull. Soc. ent. France
 1905; *L. purpuraria*, varr. at Reims, DEMAISON, p. 125, t. c.; *L.
 purpuraria*, variation, DEMAISON, Bull. Soc. Reims xiv, p. 30.
- L. fulva*, New Zealand, HUDSON, p. 357, pl. xxii, fig. 3, Tr. N. Zealand
 Inst. xxxvii, n. sp.
- Macaria liturata* ab. n. *nigrofulvata*, COLLINS, p. 45, Ent. Rec. xvii.
- Marmopteryx griseata*, and ab. *subrufata*, Bolivia, WARREN, p. 343, Nov.
 Zool. xii, n. sp.
- Medasina leledaria*, Khasia Hills, SWINHOE, p. 503, Ann. Nat. Hist. (7) xv;
- M. pallidimargo*, Kashmir, SWINHOE, p. 627, op. cit. xvi : n. spp.
- Melanochroia albifascia*, *astigma*, Peru, WARREN, p. 349, t. c. n. sp.
- Melanolophia canadaria*, life-history, DYAR, p. 58, Psyche xii.
- Melinodes fulvitincta*, Argentina, WARREN, p. 69, Nov. Zool. xii, n. sp.
- Melinoessa subalbida*, Uganda, WARREN, p. 35, t. c. n. sp.
- Mesocæla seriata*, Angola, WARREN, p. 38, t. c. n. sp.
- Mesoleuca vasiliata*, life-history, DYAR, p. 25, Psyche xii.
- Mesothisa* n. g. near *Hyposidra*, p. 403, *M. flaccida*, *gracilinea* n. sp.,
 W. Africa, p. 404, WARREN, Nov. Zool. xii.
- Mesotrophe*? *subrubata*, Solomon Ids., WARREN, p. 10, t. c. n. sp.
- Metallospora* n. g. near *Hypephyra*, p. 38, *catori* n. sp., Sierra Leone,
 p. 39, WARREN, t. c.
- Miantochora*, the female, WARREN, p. 405, t. c.
- Microgonia affinis* ab. n. *intensa*, p. 373, *M. præditaria* ab. n. *rufa*, p. 375,
 WARREN, t. c.
- M. alternata*, p. 373, *crepusculata*, Dominica, *coarctata*, Peru, p. 374,
 WARREN, t. c.; *M. roseata*, S. Africa, WARREN, p. 385, t. c.; *M.
 vestigiata*, Kashmir, SWINHOE, p. 629, Ann. Nat. Hist. (7) xvi :
 n. spp.
- Microxydia gigantula*, *pumaria*, Peru, WARREN, p. 375, Nov. Zool. xii,
 n. spp.
- Milionia glauca* var. n. *basirubra*, THIERRY-MIEG, p. 181, Naturaliste 1905.

- M. pericallis*, *callima*, p. 467, *aglaia*, p. 468, New Guinea, ROTHSCILD & JORDAN, Nov. Zool. xii, n. spp.
Mimaletis albipennis, Sierra Leone, WARREN, p. 384, Nov. Zool. xii, n. sp.
Mixocera torsilinea, Paraguay, WARREN, p. 44, t. c. n. sp.
Mnesiloba seminigra, Assam, BASTELBERGER, p. 77, Ent. Zeitschr. Guben xix, n. sp.
Monovalodes schistacea, Solomon Ids., WARREN, p. 8, Nov. Zool. xii, n. sp.
Myrme Walk. = (*Hemigymnodes* Warr.), WARREN, p. 315, t. c.
Myrmecophantes assimilis, Peru, WARREN, p. 56, t. c. n. sp.
Nadararodes pulverata, p. 435, *purpuraria*, p. 436, Solomon Ids., WARREN, t. c. n. spp.
Negla tenuiorata and *nachtigali*, distinguished, WARREN, p. 394, t. c.
Nelio decipiens, Ecuador, *tricolor*, Bolivia, THIERRY-MIEG, p. 181, Naturaliste 1905, n. spp.
Nemoria dorsicristata, Natal, WARREN, p. 34, Nov. Zool. xii, n. sp.
Neodesmodes n. g. near *Ischnopteris*, p. 360, *semialbata* n. sp., Peru, p. 361, WARREN, t. c.
Neoscelis cristata Warr. (as *Gymnoscelis*) = (*rivula* Hamps.), WARREN, p. 11, t. c.
Neostega flavata, *obscurata*, W. Africa, WARREN, p. 393, t. c. n. spp.
Nesophila n. g. *Semiothisinae*, *vulgaris* n. sp., Solomon Ids., WARREN, p. 436, t. c.
Nipteria dispansa ab. n. *infurcata*, WARREN, p. 57, t. c.
N. directa, p. 56, *elongaria*, *fumosata*, p. 57, *pallidilinea*, *subbrunnea*, p. 58, Peru, WARREN, t. c.; *N. excavata*, *flavipectus*, p. 350, *infirma*, *pieridaria*, *subsordida*, p. 351, S. America, WARREN, t. c. : n. spp.
Nomenia n. g. for *Epirrhita duodecimlineata* Pack., PEARSALL, p. 126, Canad. Ent. 1905; *Nomenia*, cf. also *Venusia*.
Nopia admiranda, Natal, WARREN, p. 406, Nov. Zool. xii, n. sp.
Noreia dentilineata, Cagayan Sulu, WARREN, p. 419, t. c. n. sp.
Notoreas ischnocyma, New Zealand, MEYRICK, Tr. ent. Soc. London 1905, n. sp.
Numia deceptrix, Tucuman, WARREN, p. 69, Nov. Zool. xii, n. sp.
Obolcola despecta, Ivory Coast, WARREN, p. 400, t. c. n. sp.
Ochroplutodes crocea, Durban, WARREN, p. 392, t. c. n. sp.
Ochyria discata, Natal, WARREN, p. 391, t. c.; *O. amaura*, Quito, WARREN, p. 333, t. c. : n. spp.
Œnoptila? *subconfusa*, p. 60, *Œ. subfasciata*, p. 61, Peru, WARREN, t. c. n. spp.
Œnospila? *stellata*, variation, WARREN, p. 422, t. c.
Omphalucha n. g. *Bistoninae*, p. 396, *hirta*, Durban, p. 397, *O.?* *rufinubes*, Angola, n. spp., p. 398, and incl. *Aphilopota ambusta*, WARREN, t. c.
Oospila depressa, Costa Rica, WARREN, p. 45, t. c.; *O. thalassina*, Peru, WARREN, p. 318, t. c. : n. spp.
Opisthoxia argentincincta, Peru, WARREN, p. 55, t. c.; *O. fulvata*, Venezuela, p. 347, *scintillans*, Peru, p. 348, WARREN, t. c. : n. spp.
Ophthalmophora chouya, Peru, THIERRY-MIEG, p. 193, Naturaliste 1905; *O. humilis*, Peru, WARREN, p. 55, Nov. Zool. xii; *O. hybridata*, Bolivia, WARREN, p. 347, t. c. : n. spp.
Orsonoba? *euryscopa*, Queensland, LOWER, p. 178, Tr. R. Soc. S. Austral. xxix; *O. orthogrammaria*, Hong Kong, LONGSTAFF, p. 184, Ent. Mag. 1905 : n. spp.
Orthonama pudibunda, Peru, *straminea*, Bolivia, WARREN, p. 334, Nov. Zool. xii.
Orthoprora albipлага, *balteata*, Peru, WARREN, p. 49, t. c. n. spp.
Ouapteryx gisela, Java, THIERRY-MIEG, p. 192, Naturaliste 1905, n. sp.
Oxyfidonia n. g. *Fidoniinae*, *fulvida* n. sp., Sierra Leone, WARREN, p. 400, Nov. Zool. xii.

- Ozola convergens*, Ceylon, WARREN, p. 419, t. c. n. sp.
Panthera semiconfluens, Peru, WARREN, p. 56, t. c. n. sp.
Parachoreutes merged in *Leptocenopsis*, WARREN, p. 310, t. c.
Paracomistis maculata, Peru, WARREN, p. 69, t. c. n. sp.
Paradarisa? *viriditincta*, Usambara, WARREN, p. 399, t. c. n. sp.
Paragramma n. g. *Hydriomeninæ*, p. 424, *mimula* n. sp., Solomon Ids., p. 425, WARREN, t. c.
Paragyrtis n. g. *Monocteniidæ* for *Panagra inostentata* Walk., MEYRICK, p. 222, Tr. ent. Soc. London 1905.
Parascotia nisseni, Algeria, TURATI, p. 42, pl. viii, fig. 1, Natural. Sicil. xviii, n. sp.
Pareclipsis insolita, Sierra Leone, WARREN, p. 39, Nov. Zool. xii, n. sp.
Pareuschema n. g. for *Eusch. regalis* Butl., THIERRY-MIEG, p. 181, Naturaliste 1905.
Penthophlebia subvenata, Peru, WARREN, p. 59, Nov. Zool. xii; *P. fuscicosta*, *posticaria*, *subapicata*, S. America, WARREN, p. 352, t. c. : n. spp.
Peratophyga bifasciata, Hainan, WARREN, p. 13, t. c. n. sp.
Pergama dissimilis, Peru, WARREN, p. 375, t. c. n. sp.
Peridela butaria ab. n. *spilota*, WARREN, p. 405, t. c.; *P. ochracea* to *Xenoecista*, WARREN, p. 437, t. c.
P. sudanata, Sudan, WARREN & ROTHSCHILD, p. 28, pl. iv, fig. 26, Nov. Zool. xii, n. sp.
Perigramma repetita, Costa Rica, WARREN, p. 352, Nov. Zool. xii, n. sp.
Perizera impudens, locality is Galapagos Ids., WARREN, p. 72, t. c.
P. ustipennis, Solomon Ids., WARREN, p. 423, t. c. n. sp.
Perizoma albivasa, *carnepicta*, p. 335, *fallax*, Peru, *ochritineta*, Huatuxco, p. 336, WARREN, t. c. n. spp.
Pero externata, Parana, *ravida*, Peru, WARREN, p. 376, t. c. n. spp.
Perusia verticata, Peru, WARREN, p. 377, t. c. n. sp.
Petrophora convallaria, life-history, DYAR, p. 59, Psyche xii.
Phasiane clathrata var. *aurata*, p. 45, pl. ix, figg. 5-12, *P. partitaria* ab. *litoralaria*, p. 46, figg. 13-20, TURATI, Natural. Sicil. xviii.
Phelloë semiplaga, Colombia, WARREN, p. 315, Nov. Zool. xii, n. sp.
Pherotesia alterata, *flavincincta*, *potens*, p. 356, *subjecta*, p. 357, S. America, WARREN, t. c. n. spp.
Phorodesma rubrimaculata, Natal, WARREN, p. 385, t. c. n. sp.
Phrygionis cruentaria, Dominica, WARREN, p. 345, t. c. n. sp.
Phylodontia carneata to *Euelysia*, WARREN, p. 67, t. c.
Plerocymia? *rhombifascia*, Peru, WARREN, p. 337, t. c. n. sp.
Polla fuscata, Peru, WARREN, p. 70, t. c. n. sp.
Prasinoscia n. g. *Geometrinæ*, p. 318, *insolens* n. sp., Venezuela, p. 319, WARREN, t. c.
Problepsis venus, Amboina, *maxima*, Japan, *mozambique*, Africa, THIERRY-MIEG, p. 192, Naturaliste 1905, n. spp.
Psaliodes tripartita to *Hypolepsis*, WARREN, p. 49, Nov. Zool. xii.
P. brachiata, *dislocata*, Peru, WARREN, p. 50, t. c.; *P. marmorata*, Peru, WARREN, p. 337, t. c. : n. spp.
Psamathia parallelaria, Costa Rica, WARREN, p. 308, t. c. n. sp.
Pseudasthena grataria, abb. n. *marginata* and *perflava*, WARREN, p. 426, t. c.
Pterocypha simpliciata, Argentina, WARREN, p. 338, t. c. n. sp.
Ptychopha informipennis, Peru, WARREN, p. 324, t. c. n. sp.
Ptychopoda crassisquama, pl. iv, fig. 36, *microptera*, fig. 7, p. 27, *granulosa*, fig. 38, p. 28, Sudan, WARREN & ROTHSCHILD, Nov. Zool. xii, n. spp.
Pungaleria capreolaria, pl. 11, fig. 7, ROUGEMONT, Bull. Soc. Neuchatel xxix.
Pycnostega n. g. near *Neostega*, p. 393, *obscura* n. sp., Niger Riv. p. 394, WARREN, Nov. Zool. xii.
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PYRALIDÆ, THYRIDIDÆ.

[Cf. BETHUNE-BAKER (108), CHAPMAN (305), DAECKE (385), DOGNIN (438), DUDGEON (465), DYAR (470, 474), HAMPSON (718, 719), KEARFOTT (831), LOWER (980, 981), MEYRICK (1041), ROTHSCHILD & JORDAN (1307), SCHÜTZE (1366), SWINHOE (1460), TURNER (1509), VÁZQUEZ (1535), WARREN (1568, 1569, 1571–1575), WARREN & ROTHSCHILD (1576).]

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- Z. perdubiella*, Utah, DYAR, p. 37, t. c. n. sp.

PTEROPHORIDÆ and ORNEODIDÆ.

[Cf. HAMPSION (718), HOUARD (780), MEYRICK (1041, 1043), TUTT (1512).]

The types of *Pterophoridae* etc., TUTT, pp. 34–37, Ent. Rec. xvii.

The following *n. genn.* are proposed by TUTT, *Gillmeria* type *ochrodactyla*, *Fredericina* type *calodactyla*, *Capperia* type *heterodactyla*, *Adkinia* type *bipunctidactyla*, *Ovendenia* type *septodactyla*, *Buckleria* type *paludum*, *Adkinia* type *microdactyla*, *Hellinsia* type *osteodactylus*, *Emmelina* type *monodactyla*, *Merrifieldia* type *tridactyla*, *Porriftia* type *galactodactyla*, *Wheeleria* type *spilodactyla*, Ent. Rec. xvii, p. 37.

Alucita sesamitis, Burma, MEYRICK, p. 582, J. Bombay Soc. xvi, *n. sp.*

Orneodes hübnerti, galls, HOUARD, p. 31, Marcellia iv.

O. thapsina, *ischalea*, Ceylon, MEYRICK, p. 583, J. Bombay Soc. xvi, *n. spp.*

Oxyptilus zanclistes, p. 581, Burma, *causodes*, Ceylon, p. 582, MEYRICK, t. c. *n. spp.*

Platyptilia epotis, New Zealand, MEYRICK, Tr. ent. Soc. London 1905, *n. sp.*

Titanoptilus *n. g.* near *Trichoptilus*, p. 248, *melanodonta* *n. sp.*, Uganda, p. 249, HAMPSION, Tr. ent. Soc. London 1905.

Triscædecia *n. g.* *Orneodidae*, *dactyloptera* *n. sp.*, Ceylon, HAMPSION, p. 247, t. c.

TORTRICIDÆ.

[Cf. DEWITZ (411, 412), DISQUÉ (420), DOGNIN (438), FERNALD (555, 556, 735), KEARFOTT (829–832), MEYRICK (1041, 1043), PETERSEN (1155).]

DISQUÉ gives brief note as to larvæ, food-plates, dates of a large number of Central-European species; Iris Dresden xvii, pp. 209–256.

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Amphisa joannisiana Rag., natural history, CHRÉTIEN, p. 129, Naturaliste 1905.

Ancylis albacostana, p. 360, *diminutatana*, p. 361, N. Carolina, KEARFOTT, P. U. S. Mus. xxviii, *n. spp.*

Anchips strianus, Canada, FERNALD, p. 399, Canad. Ent. 1905, *n. sp.*

Ascerodes *n. g.* near *Harmologa*, *prochlora* *n. sp.*, New Zealand, MEYRICK, p. 234, Tr. ent. Soc. London 1905, *n. sp.*

Cacoecia epicryta, Ceylon, MEYRICK, p. 589, J. Bombay Soc. xvi, *n. sp.*

Catoptria rufana Steph. and *expallidana* Haw., synonymous query, SOUTH, p. 100, Entomologist 1905.

Cnephasia sinuana and *incanana* Steph., synonymous query, SOUTH, p. 98, Entomologist 1905.

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Cydia imbridana, N. America, FERNALD, p. 400, Canad. Ent. 1905, *n. sp.*

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Eucelis critica, Bombay, MEYRICK, p. 587, J. Bombay Soc. xvi, *n. sp.*

Eucosma robinsoniana var. *n. tryonana*, p. 350, *dorsisignatana* var. *n. confusa*, *diffusana*, p. 355, KEARFOTT, P. U. S. Mus. xxviii.

E. graciliana, p. 352, *pallidipalpana*, p. 353, *minutana*, p. 356, *sombreana*, p. 357, *rusticana*, *fiskeana*, p. 358, N. Carolina, KEARFOTT, t. c.; *E.*

- pergandeana*, North America, FERNALD, p. 399, Canad. Ent. 1905 : n. spp.
- Eulia pinatubana*, N. America, KEARFOTT, p. 9, Canad. Ent. 1905, n. sp.
- Eurythecta zelæa*, N. Zealand, MEYRICK, p. 233, Tr. ent. Soc. London 1905, n. sp.
- Evetria gemistrigulana*, N. Carolina, KEARFOTT, p. 349, P. U. S. Mus. xxviii, n. sp.
- Grapholitha gemmiferana*, larva, pl. 1, fig. 5 a, b, p. 96, KRONE, Jahresber. Wien. ent. Ver. 1904.
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- Oxygrapha sagmatias*, Ceylon, MEYRICK, p. 588, J. Bombay Soc. xvi, n. sp.
- Pandemis canadana*, N. America, KEARFOTT, p. 90, Canad. Ent. 1905, n. sp.
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- P. winniana*, N. America, KEARFOTT, p. 10, Canad. Ent. 1905, n. sp.
- Platypeplus hedraea*, *harmonica*, *erotias*, p. 584, *phylochloora*, *creserias*, *threnodes*, p. 585, *hemiopta*, *rhynchias*, p. 586, Ceylon, MEYRICK, J. Bombay Soc. xvi, n. spp.
- Polyochrosis*; the N. American, KEARFOTT, pp. 287–299, pls. xix, xx, Tr. Amer. ent. Soc. xxx.
- P. liriodendrana*, p. 293, *slingerlandana*, p. 295, *rhoifructana*, p. 296, N. America, KEARFOTT, t. c. n. spp.
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- Strepsicrates dolopæa*, New Zealand, MEYRICK, p. 232, Tr. ent. Soc. London 1905, n. sp.
- Thiodia dorsiatomana*, p. 44, *triangulana*, p. 47, Assiniboa, KEARFOTT, Canad. Ent. 1905, n. spp.
- Tortrix albicomana* var. n. *semipurpuraana*, KEARFOTT, p. 9, t. c.
- T. syphoricarpa*, N. America, KEARFOTT, p. 92, t. c. n. sp.
- Tribonica* n. g. near *Heterocrossa*, p. 589, *eremitis* n. sp., Ceylon, p. 590, MEYRICK, J. Bombay Soc. xvi.
- Trymalitis* n. g. near *Commophila*, *margaritas* n. sp., Ceylon, MEYRICK, p. 590, t. c.

TINEIDÆ.

[Cf. CHRÉTIEN (316–319), DIETZ (419), DOGNIN (438), ENDERLEIN (506), KEARFOTT (831, 833), KRONE (897), LOWER (980), MEYRICK (1041, 1043), MURTFELDT (1081), PORTIER (1215), SCHÜTZE (1366) SICH]

(1391), SITOWSKI (1402), SORHAGEN (1428), WALSINGHAM (1564), WARREN & ROTHSCHILD (1576), ZANDER (1653).]

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Amphoritis n. g. near *Xylorycta camelodes*, p. 601, *nycterodes*, p. 602, n. spp., Ceylon, MEYRICK, J. *Bombay Soc.* xvi.

Amydria brevipennella, p. 5, *coloradella*, *arizonella*, p. 6, *apachella*, p. 7, *curvistrigella*, *pandurella*, *confusella*, p. 8, *onagella* with var. *occidentella*, p. 9, *obliquella*, p. 10, *dyarella*, pl. i, fig. 1, *margoriella*, pl. iii, fig. 5, p. 11, N. America, DIETZ, *Tr. Amer. ent. Soc.* xxxi, n. spp.

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- Compsistis orthophanes*, New Zealand, MEYRICK, p. 243, Tr. ent. Soc. London 1905, n. sp.
- Copromorpha pleurophanes*, Ceylon, MEYRICK, p. 606, J. Bombay Soc. xvi, n. sp.
- Copromorphidæ* n. fam. for *Copromorpha*, MEYRICK, p. 606, t. c.
- Crobylophora staterias*, Ceylon, MEYRICK, p. 613, t. c. n. sp.
- Cryptolechia spilotella* Walk. to *Torodora*, MEYRICK, p. 600, t. c.
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- Cuphodes dicastis*, Ceylon, MEYRICK, p. 606, J. Bombay Soc. xvi, n. sp.
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- Elachista heringi*, pl. i, figg. 12 a, b, *hedemanni*, fig. 13, larvæ, p. 101, KRONE, Jahresber. Wien. ent. Ver. 1904.
- Embryonopsis* subf. n. of *Gelechiinæ* for *Embryonopsis* Eat., ENDERLEIN, p. 120, Zool. Anz. xxix.
- Epactris* n. g. near *Tinea*, *melanchæta* n. sp., Ceylon, MEYRICK, p. 617, J. Bombay Soc. xvi.
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- Gracilaria perispheна*, Ceylon, MEYRICK, p. 613, J. Bombay Soc. xvi, n. sp.
- Gymnobathra bryaula*, New Zealand, MEYRICK, p. 238, Tr. ent. Soc. London 1905, n. sp.
- Hilarographa caminodes*, Ceylon, MEYRICK, p. 610, J. Bombay Soc. xvi, n. sp.
- Homosaces* merged in *Phæosaces*, MEYRICK, p. 605, t. c.
- Homosetia obscurella*, p. 82, *chrysoadspersella*, pl. ii, fig. 8, p. 83, *maculatella*, p. 84, *H. (Stenoptinea subg. n.?) ornatella*, pl. iv, fig. 3, *auriferella*, p. 87, *H. heteropalpella*, pl. iii, fig. 3, p. 88, DIETZ, Tr. Amer. ent. Soc. xxxi, n. spp.

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- Hypelictis* n. g. near *Ypsolophus*, *acrochlora* n. sp., Ceylon, MEYRICK, p. 600, J. Bombay Soc. xvi.
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- Irianassa* n. g. near *Hilarographa*, *sapphiropa* n. sp., Ceylon, MEYRICK, p. 609, J. Bombay Soc. xvi.
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- Macrosaces* n. g. near *Phæosaces*, *thermopa* n. sp., Ceylon, MEYRICK, p. 604, J. Bombay Soc. xvi.
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- Melasina* *tetraspila*, p. 615, *autadelpha*, *platyzona*, *energa*, p. 616, Ceylon, MEYRICK, t. c. n. spp.
- Mesoptyne hebes*, Colombia, DOGNIN, p. 89, Ann. Soc. ent. Belgique 1905, n. sp.
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- Nephatois* n. g. near *Xylorycta*, *serinopa* n. sp., Ceylon, MEYRICK, p. 603, t. c.
- Nepticula lusatica*, Germany, SCHÜTZE, p. 204, Iris Dresden xvii, n. sp.
- Œdematopoda cypris*, Ceylon, MEYRICK, p. 608, J. Bombay Soc. xvi, n. sp.
- Onebala crennaspis*, Ceylon, MEYRICK, p. 598, t. c. n. sp.
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- Orthenches* *drosochalca*, New Zealand, MEYRICK, p. 242, Tr. ent. Soc. London 1905, n. sp.
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- Paraplesia* n. g. *Amydriinae*, *busckella* n. sp., Arizona, DIETZ, p. 12, t. c.
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- Paratheta* *cyclozona*, Queensland, LOWER, p. 109, Tr. R. Soc. S. Austral. xxix, n. sp.
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- Phæosaces* *chrysocoma*, *orthotoma*, *aganopis*, Ceylon, MEYRICK, p. 605, J. Bombay Soc. xvi, n. spp.
- Pharangitis* n. g. near *Macrotona*, *spathias* n. sp., Ceylon, MEYRICK, p. 597, t. c.

- Phryganostola macrantha*, Victoria, LOWER, p. 113, Tr. R. Soc. S. Austral. xxix, n. sp.
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- Psaltica* n. g. near *Pheosaces*, *monochorda* n. sp., Ceylon, MEYRICK, p. 604, J. Bombay Soc. xvi.
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- Pyroderces selenopis*, p. 606, *magica*, *spodochtha*, *scæosema*, p. 607, Ceylon, MEYRICK, J. Bombay Soc. xvi, n. spp.
- Saptha smaragditis*, Ceylon, MEYRICK, p. 610, t. c. n. sp.
- Scardia coloradella*, p. 25, *approximatella*, pl. i, fig. 8, p. 27, N. America, DIETZ, Tr. Amer. ent. Soc. xxxi, n. spp.
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- Setomorpha majorella*, p. 15, *sigmoidella*, p. 16, N. America, DIETZ, t. c. n. sp.
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- ophrionella*, New York, pl. iii, fig. 6, *xanthostictella*, Georgia, p. 56, *mandarinella*, pl. iii, fig. 1, Ohio, p. 57, *roburella*, New Jersey, pl. ii, fig. 3, p. 58, *multistriatella*, Canada, pl. ii, fig. 5, *rileyi*, Florida, p. 59, *molybdanella*, California, pl. iii, fig. 7, p. 61, *geniculatella*, California, p. 62, *apicisignatella*, Pennsylvania, *angulifasciella*, pl. ii, fig. 7, Maryland, p. 65, *interstitiella*, Georgia, *fulvisufusella*, New Hampshire, p. 68, *nigroatomella*, New Jersey, pl. iii, fig. 4, p. 70, DIETZ, Tr. Amer. ent. Soc. xxxi : n. spp.
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[Cf. COQUILLET (61, 366), DEL GUERCIO (393), MEUNIER (1034).]

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Lejomya = *Neoglaphyoptera hyalina*, New Mexico, COQUILLET, p. 68, t. c. n. sp.

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Sciophila calcarata, California, COQUILLETT, p. 19, Invert. pacif. i ; *S. fuscipennis, simplex, brevivitta*, N. America, COQUILLETT, p. 67, J. N. York Ent. Soc. xiii : n. spp.

CHIRONOMIDÆ.

[Cf. COQUILLETT (366), GOELDI (672), JOHANNSEN (820), KNAB (872), KULAGIN (902), LAUTERBORN (921), MEUNIER (1034), MÜLLER (1077), NOÉ (1105), SCHNEIDER (1335).]

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Centrotypus irritans NOÉ to *Mycteropus* n. g., NOÉ, p. 118, Rend. Acc. Lincei xiv, ii.

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C. setipes, pruiniosus, p. 59, *bivittatus, flavoniger, pictus*, N. America, *gibber*, Cuba, p. 60, *nubifer, slossonæ, magnus*, p. 61, *gilvus, curriei*, N. America, *scaber*, Mexico, p. 62, *caudelli, fusicornis, monilicornis*, p. 63, *maculipennis, cinctipes*, N. America, *calcaratus*, Mexico, *tenebrosus*, p. 64, *unicolor*, p. 65, N. America, COQUILLETT, J. N. York Ent. Soc. xiii, n. spp.

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CULICIDÆ.

[Cf. ADIE & ALCOCK (11), BILLET (118), BLANCHARD (124), CHALMERS (297), COQUILLETT (367, 371), DASSONVILLE (388), DYAR (473, 475, 477–481, 484), EYSELL (532), FELT (554), GILES (654), GOELDI (672, 673), GRABHAM (684), GREEN (690), GROSSBECK (701), GRÜNBERG (705, 706), HOWARD (787), KULAGIN (901), LEVANDER (946), LUDLOW (984–986), LUTZ (159), MARCHOUX & SIMOND (1007), NEVEU-LEMAIRE (1096, 1097), NUTTALL (1112), PATTON (1140), PRESSAT (1216), SERGENT (1382–1384), STEPHENS & CHRISTOPHER (1448), SMITH (1421), SMITH & GROSSBECK (1422), THEOBALD (1476–1484), UNDERWOOD (1521), VENTRILLON (1537, 1538), WATERHOUSE (1591), WELCH (1613).]

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SYRPHIDÆ.

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[Cf. BRUES (200, 201), MEUNIER (1036, 1040).]

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- Aphiochæta peruviana*, p. 396, *tarsata*, *delicatula*, p. 397, *bella*, p. 398, Peru, BRUES, Ann. Mus. Hungar. iii; *A. apicalis*, p. 544, *tibialis*, p. 545, *limbata*, India, *rustica*, p. 546, *planifrons*, p. 547, New Guinea, *crassimana*, p. 548, *debilis*, Australia, *minutissima*, New Guinea, p. 549, *sodalis*, Sydney, p. 550, BRUES, t. c. n. spp.
Chonocephalus similis, Bombay, BRUES, p. 554, t. c. n. sp.
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[Cf. ADAMS (6), BECKER (89), BENHAM (96), BRÈTHES (188), BROUN (195), CARPENTER (278), COQUILLET (61), LESNE (942), DE MEIJERE (1024), MEUNIER (1038, 1040), NIELSEN (1100), NOEL (1107), SPEISER (1434), STROBL (1455).]

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- Chyliza robusta*, Nevada, COQUILLETT, p. 28, Invert. pacif. i, n. sp.
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PUPIPARA.

[Cf. RIBEIRO (1265), SPEISER (1437).]

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L. ejovea, Ceylon, p. 352, *sepiacea*, S. Africa, p. 353, *conifera*, Brazil, p. 354, SPEISER, t. c. n. spp.
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APHANIPTERA.

[Cf. BAKER (53, 55, 62, 67), ENDERLEIN (508), GROSS (700), HERZOG (741), KOAUT (873), LASS (918), MEISSNER (1025), NOC (1104), RAINBOW (1232), ROTHSCHILD (1299-1303).]

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 pl. xiii, fig. 5, ROTHSCHILD, Nov. Zool. xii : n. spp.
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Uropsylla n. g. p. 487, *tasmanicus* n. sp., Launceston, p. 488, pl. xiv, figg. 11, 12, ROTHSCHILD, Nov. Zool. xii.

(E.) *HEMIPTERA OR RHYNCHOTA.*

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- Platycoris scutellatus*, p. 190, pl. viii, fig. 1, *rufescens*, fig. 2, p. 191, Australia, VAN DUZEE, Bull. Amer. Mus. xxi, n. sp.
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- Protestrica* subg. n. of *Testrica* for *emarginata* Snell., etc., SCHOUTEDEN, p. 25, Gen. ins. fasc. xxx.
- Schiædtia* n. n. for *Philia* Stål, KIRKALDY, p. 79, Entomologist 1905.
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- Scotinophara longipes*, Trichinopoly, SCHOUTEDEN, p. 147, Ann. Soc. ent. Belgique 1905, n. sp.
- Sibaria andicola*, Ecuador, BREDDIN, p. 27, Soc. ent. xx, n. sp.
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- Stictonotus* n. n. for *Stictocoris* Kirk., KIRKALDY, p. 268, Wien. ent. Zeit. xxiv.
- Storthogaster junodi* var. n., *rikatensis*, SCHOUTEDEN, p. 55, Wien. ent. Zeit. xxiv.
- Testrica stali* n. n. for *emarginata* Stål, SCHOUTEDEN, p. 26, Gen. ins. fasc. xxx.
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COREIDÆ.

[Cf. ANNANDALE (29), BERGROTH (98, 99), BREDDIN (180, 181), KIRKALDY (856).]

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- Alydus calcaratus*, relations with ants, MJÖBERG, pp. 68–76, Arkiv Zool. ii, No. 17.

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- Cletomorpha spinijugis*, Madagascar, BERGROTH, p. 370, Ann. Soc. ent. Belgique 1905, n. sp.
- Cletus armatus* n. n. for *pugnator* Dall, p. 118, *punctulatus* var. n. *javanus*, p. 119, BREDDIN, Mt. Mus. Hamburg xxii.
- Colpura hebeticollis*, Banguey, BREDDIN, p. 212, t. c. n. sp.
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- Savius bergi*, Brazil, BERGROTH, p. 107, Rev. Ent. franc. 1905, n. sp.
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LYGÆIDÆ.

[Cf. BERGROTH (98), BERGROTH & SCHOUTEDEN (100), BREDDIN (180, 181), DISTANT (433, 435), HORVÁTH (776, 779), KIRKALDY (856).]

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- Cligenes aethiops*, Cape Colony, DISTANT, p. 435, t. c. n. sp.
- Cymus nocturnus*, waelbroecki, Congo, BERGROTH, p. 380, Ann. Soc. ent. Belgique 1905, n. sp.
- Geocoris itonis*, Japan, HORVÁTH, p. 414, Ann. Mus. Hungar. iii; *G. willeyi*, New Britain, KIRKALDY, p. 349, pl. xvii, fig. 8, Tr. ent. Soc. London 1905 : n. spp.
- Lethaeus nodulinervis*, Madagascar, BERGROTH, p. 373, Ann. Soc. ent. Belgique 1905, n. sp.
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- O. breddini*, Congo, BERGROTH, p. 380, Ann. Soc. ent. Belgique 1905; *O. exitosus*, Cape Town (injurious to peach etc.), DISTANT, p. 169, Entomologist 1905; *O. lifuanus*, Lifu, KIRKALDY, p. 347, Tr. ent. Soc. London 1905 : n. spp.
- Pachygrontha miriformis*, Banguey, BREDDIN, p. 213, Mt. Mus. Hamburg xxii, n. sp.
- Pachymerus nereis*, Lifu, KIRKALDY, p. 347, pl. xvii, fig. 7, Tr. ent. Soc. London 1905, n. sp.
- Pamerla lounsburyi*, Cape Colony, DISTANT, p. 435, Tr. S. African Soc. xiv, n. sp.
- Peritrechus gracilicornis* var. n. *xanthopus*, HORVÁTH, p. 272, Bol. Soc. espan. v.
- Ptochiomera kydippe*, Lifu, KIRKALDY, p. 346, Tr. ent. Soc. London 1905, n. sp.
- Pyrrhocaphus satrapa*, Java, p. 119, *regulus*, Sumbawa, p. 120, BREDDIN, Mt. Mus. Hamburg xxii, n. spp.

- Taphropeltus championi*, Guadarrama, REUTER, p. 52, Tr. ent. Soc. London 1905, n. sp.
Vertomannus tener, Java, BREDDIN, p. 121, Mt. Mus. Hamburg xxii, n. sp.

PYRRHOCORIDÆ.

[Cf. BERGROTH (98), BREDDIN (181), KIRKALDY (856), KUHLGATZ (898, 899), SCHOUTEDEN (1341).]

Cenaeus exsanguis Gerst. to *Odontopus*, BERGROTH, p. 371, Ann. Soc. ent. Belgique 1905.

Dynamenais n. g. for *Ectatops venustus* Walk., KIRKALDY, p. 343, Tr. ent. Soc. London 1905.

Dysdercus cingulatus, larval stages, KUHLGATZ, pp. 595–616, Zool. Jahrb. Suppl. viii; *D. sidae*, valid sp., p. 81, pl. ii, figg. 8, 9, *cingulatus*, pl. ii, figg. 15, 16, p. 83, *superstitiosus* and allies, pp. 86, 87, natural history, larval notes, pp. 98–101, KUHLGATZ, Mt. Mus. Berlin iii.

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Physopelta sera, Java, BREDDIN, p. 127, Mt. Mus. Hamburg xxii, n. sp.

TINGIDÆ.

[Cf. BERGROTH & SCHOUTEDEN (100), DISTANT (435), HORVÁTH (777, 779), KIRKALDY (859).]

Acalypta carpathica, Roumania, *sejuncta*, Armenia, HORVÁTH, p. 561, Ann. Mus. Hungar. iii, n. spp.

Acanthocheila kahavalu, Peru, KIRKALDY, p. 216, Bull. Soc. ent. France 1905, n. sp.

Aconchus subg. n. cf. *Galeatus*.

Americia annae, Peru, KIRKALDY, p. 216, Bull. Soc. ent. France 1905, n. sp.

Astolophos n. g. near *Phatnoma*, p. 428, *capitatus* n. sp., Cape Town, pl. viii, fig. 5, p. 429, DISTANT, Tr. S. African Soc. xiv.

Biskria sareptana var. n. *adelpha*, HORVÁTH, p. 563, Ann. Mus. Hungar. iii.

B. lepida, Tunis, HORVÁTH, p. 562, t. c. n. sp.

Campylosteira falleni var. n. *miridita*, p. 558, *pilifera* var. n. *humilis*, p. 560, and var. n. *diminuta*, p. 561, HORVÁTH, t. c.

C. dispar, p. 558, *cognata*, p. 559, *sororcula*, 560, Algeria, HORVÁTH, t. c. n. spp.

Catoplatus nigriceps, Europe, HORVÁTH, p. 569, t. c. n. sp.

Compseuta montandoni, Delagoa Bay, pl. viii, fig. 15, DISTANT, p. 434, Tr. S. African Soc. xiv, n. sp.

Copium glabricorne to *Euryicerca*, fig. pl. viii, fig. 9, DISTANT, p. 430, t. c.

Derephysia nigricosta, Spain, HORVÁTH, p. 272, Bol. Soc. espan. v, n. sp.

Dictyonota tricornis varr., HORVÁTH, p. 563, Ann. Mus. Hungar. iii.

D. aethiops, Algeria, p. 563, *iberica*, S. Spain, p. 563, HORVÁTH, t. c. n. spp.

Galeatus consimilis, Spain, HORVÁTH, p. 273, Bol. Soc. espan. v; *G. (Aconchus* subg. n. p. 566), *urbanus*, Italy, p. 565, HORVÁTH, Ann. Mus. Hungar. iii : n. spp.

Hædus n. g. near *Leptostyla*, *clypeatus* n. sp., Cape Colony, p. viii, fig. 12, DISTANT, p. 432, Tr. S. African Soc. xiv.

Manuala n. g. near *Eurypharsa*, *leinahoni* n. sp., Peru, KIRKALDY, p. 217, Bull. Soc. ent. France 1905.

- Hyalochiton subg. n.* of *Galeatus*, for *G. komaroffi* Jak., HORVÁTH, p. 566, Ann. Mus. Hungar. iii.
- Lullius* n. g. near *Serenthia*, p. 429, *major*, pl. viii, fig. 7, *L. ? minor*, fig. 8, n. spp., Cape Colony, p. 430, DISTANT, Tr. S. African Soc. xiv.
- Monanthis montandoni* var. n. *rivalis*, p. 570, *putoni* var. n. *pulla*, p. 572, HORVÁTH, Ann. Mus. Hungar. iii.
- M. ruficeps*, Tunis, *subdola*, Araxes Valley, HORVÁTH, p. 571, t. c. ; *M. mitrata*, Grahamstown, pl. viii, fig. 14, DISTANT, p. 433, Tr. S. African Soc. xiv : n. spp.
- Monosteira cleopatra*, Egypt, HORVÁTH, p. 572, Ann. Mus. Hungar. iii, n. sp.
- Physatocheila confinis*, S. E. Europe etc., HORVÁTH, p. 570, t. c. n. sp.
- Phyllotocherla waelbroecki*, Congo, SCHOUTEDEN, p. 381, Ann. Soc. ent. Belgique 1905 ; *P. junodi*, Transvaal, pl. viii, fig. 10, DISTANT, p. 431, Tr. S. African Soc. xiv : n. spp.
- Sanazarius* n. g. *Tingidaria*, *cuneatus* n. sp., Cape Colony, pl. viii, fig. 11, DISTANT, p. 431, t. c.
- Serenthia ruficornis* var. n. *dubia*, *femoralis* var. n. *antennata*, p. 556, and varr. n. *thoracica*, *imbecilla*, p. 557, *leta* var. n. *apicicornis*, p. 557, *nigra* var. n. *collaris*, p. 558, HORVÁTH, Ann. Mus. Hungar. iii.
- S. turanica*, Turkestan, p. 556, *blandula*, Caucasus, p. 558, HORVÁTH, t. c. ; *S. peringuieri*, Cape Town, DISTANT, pl. viii, fig. 6, p. 429, Tr. S. African Soc. xiv : n. spp.
- Sinalda* n. g. p. 426 for part of *Phatnoma*, *elegans*, pl. viii, fig. 2, *reticulata*, fig. 3, p. 427, *nebulosa*, fig. 4, p. 428, n. spp., S. Africa, DISTANT, t. c.
- Stephanitis azaleæ* n. n. for *T. pyrioides* Scott, HORVÁTH, p. 568, Ann. Mus. Hungar. iii.
- S. rhododendri*, Holland, HORVÁTH, p. 567, t. c. n. sp.
- Teleonemia australis*, Cape Town, pl. viii, fig. 13, DISTANT, p. 432, Tr. S. African Soc. xiv, n. sp.
- Tingis chlorophana* to *Stephanitis*, *auriculata* varr. n., HORVÁTH, p. 569, Ann. Mus. Hungar. iii.
- Ulmus* n. g. *Cantacaderaria*, p. 425, *testudineatus* n. sp., S. Africa, pl. viii, fig. 1, p. 426, DISTANT, Tr. S. African Soc. xiv.

BERYTIDÆ and ARADIDÆ.

[Cf. DISTANT (434), HORVÁTH (774, 776).]

- Aneurus greeni*, Ceylon, DISTANT, p. 194, Entomologist 1905, n. sp.
- Aradus consentaneus*, Japan, HORVÁTH, p. 415, Ann. Mus. Hungar. iii, n. sp.
- Megalomerium tenellum*, New Guinea, *breviceps*, Hungary, HORVÁTH, p. 57, t. c. n. spp.
- Parajalysus andinus*, *concavus*, Peru, HORVÁTH, p. 60, t. c. n. spp.
- Pneustocerus* n. g. *nigricornis* n. sp., New Guinea, HORVÁTH, p. 59, t. c.
- Triconulus* n. g. *egyptius* n. sp., Egypt, HORVÁTH, p. 58, t. c.
- Yemma* n. g. *exilis* n. sp., Japan, HORVÁTH, p. 56, t. c.

HYDROMETRIDÆ.

[Cf. BREDDIN (180), BUENO (210), DISTANT (435), HORVÁTH (776), MJÖBERG (1050), SCHOUTEDEN (100).]

- Angillia germari*, Cape Colony, DISTANT, p. 436, Tr. S. African Soc. xiv, n. sp.

- Gerris ysolt*, Java, BREDDIN, p. 130, Mt. Mus. Hamburg xxii, n. sp.
Hydrometra martini, habits, BUENO, pp. 12–14, Canad. Ent. 1905; *H. australis* Say, a good species, BUENO, p. 284, t. c.
H. procera, Japan, HORVÁTH, p. 416, Ann. Mus. Hungar. iii; *H. australis*, Georgia, BUENO, p. 15, Canad. Ent. 1905 : n. spp.
Mesovelia proxima, Congo, SCHOUTEDEN, p. 388, Ann. Soc. ent. Belgique 1905, n. sp.
Metrocoris strangulator, Java, BREDDIN, p. 134, Mt. Mus. Hamburg xxii, n. sp.
Peritopus vicarians, Java, BREDDIN, p. 129, t. c. n. sp.
Ptilomera asbolus, Java, BREDDIN, p. 132, t. c. n. sp.
Rhagadotarsus n. g. near *Rhagovelia*, p. 136, *kraepelini* n. sp., Java, p. 137, BREDDIN, t. c. n. spp.

REDUVIIDÆ.

- [Cf. BERGROTH (98, 99), BERGROTH & SCHOUTEDEN (100), BREDDIN (180–182), KIRKALDY (856), VARELA (1532, 1533).]
- Allaeorrhynchus piceus*, Java, BREDDIN, p. 145, Mt. Mus. Hamburg xxii, n. sp.
A. perminutus, Congo, BERGROTH, p. 386, Ann. Soc. ent. Belgique 1905, n. sp.
Breddinia lobata, p. 98, *B. gracilis*, p. 99, W. Africa, VARELA, Bol. Soc. espan. v, n. spp.
Diarhrotarsus n. n. for *Lycimna* Stål, BERGROTH, p. 112, Rev. Ent. franc. 1905.
Ghilianella congoensis, Africa, SCHOUTEDEN, p. 385, Ann. Soc. ent. Belgique 1905, n. sp.
Harpactor (Harpiscus) ausmeti, Guinea, VARELA, p. 97, Bol. Soc. espan. v, n. sp.
Heteropinus and *Platymicrus* distinguished, BREDDIN, p. 264, Wien. ent. Zeit. xxiv.
Heza signoreti Fallou, BERGROTH, p. 108, Rev. Ent. franc. 1905.
Katanga fuscolivens, Congo, BERGROTH, p. 373, Ann. Soc. ent. Belgique 1905, n. sp.
Maryasus ornatus, p. 145, *martini*, p. 146, *nitidus*, *elegans*, p. 147, Madagascar, VARELA, Bol. Soc. espan. v, n. spp.
Munia n. g. near *Irantha*, p. 99, *schoutedeni* n. sp., Cameroons, p. 100, VARELA, t. c.
Oncocephalus amen, New Britain, KIRKALDY, p. 340, Tr. ent. Soc. London 1905, n. sp.
Pasiropsis nabidoides, Java, BREDDIN, p. 145, Mt. Mus. Hamburg xxii, n. sp.
Patago n. n. for *Hoplogenius* Stål, BERGROTH, p. 112, Rev. Ent. franc. 1905.
Physoderus azrael, New Britain, KIRKALDY, p. 339, Tr. ent. Soc. London 1905, n. sp.
Pirates grandis Fallou, BERGROTH, p. 109, Rev. Ent. franc. 1905.
Platymicrus aneurooides, Cameroons, BREDDIN, p. 263, Wien. ent. Zeit. xxiv, n. sp.
Pselliopus n. n. for *Milyas* Stål, BERGROTH, p. 112, Rev. Ent. franc. 1905.
Pygolampis kinchasse, Congo, SCHOUTEDEN, p. 384, Ann. Soc. ent. Belgique 1905, n. sp.
Sastrapada noctivaga, BERGROTH, p. 382, *vicina*, S. (*Harpagochares*) *signata*, p. 383, SCHOUTEDEN, Congo, Ann. Soc. ent. Belgique 1905 : n. spp.
Scadra nigritula, Java, BREDDIN, p. 147, Mt. Mus. Hamburg xxii, n. sp.
Sphedanolestes albigula, Java, BREDDIN, p. 148, t. c. n. sp.

- Spiniger bergi*, p. 110, *paganus*, p. 111, Brazil, BERGROTH, Rev. Ent. franc. 1905, n. spp.
Sycanus rhombogaster, Banguey, BREDDIN, p. 217, Mt. Mus. Hamburg xxii, n. sp.
Toxopus n. g. *Ectrichodiinae*, p. 374, *politus* n. sp., Madagascar, p. 375, BERGROTH, Ann. Soc. ent. Belgique 1905.
Tragelaphodes bergrothi, E. Africa, BREDDIN, p. 264, Wien. ent. Zeit. xxiv, n. sp.
Tribelocephala breviceps, Congo, BERGROTH, p. 375, Ann. Soc. ent. Belgique 1905, n. sp.
Zelus peregrinus, natural history, eggs, SWEZEY, p. 232, pl. xvi, Rep. exp. Stat. Hawaii i.
Z. gradarius, Brazil, BERGROTH, p. 109, Rev. Ent. franc. 1905, n. sp.

CIMICIDÆ, ANTHOCORIDÆ, HENICOCEPHALIDÆ, CERATOCOMBIDÆ.

[Cf. BERGROTH (98), BERGROTH & SCHOUTEDEN (100), BREDDIN (180), GIRAULT (666, 667), HEIDEMANN (733), HORVÁTH (776).]

- Enictopechys* n. g. *Henicocephalidae*, p. 139, *necopinatus* n. sp., Java, p. 140, BREDDIN, Mt. Mus. Hamburg xxii.
Cocles n. g. *Henicocephalidae*, *contemplator* n. sp., Madagascar, BREDDIN, p. 142, t. c.
Clinocoris lectularia, life-history, food-habits, longevity, GIRAULT, Psyche xii, pp. 61–74; *C. lectularius* attacks mice, and *C. columbarius* attacks man and mouse, GIRAULT, pp. 117–123, t. c.
Glyptocombus n. g. *Ceratocombidae*, p. 192, *G. saltator* n. sp., Plummer's Is., p. 194, HEIDEMANN, P. ent. Soc. Washington 1905.
Henicocephalus hymeneus, *laticollis*, Madagascar, p. 376, *tuberculatus*, Congo, p. 377, BERGROTH, Ann. Soc. ent. Belgique 1905; *H. cornifrons*, Congo, SCHOUTEDEN, p. 385, Ann. Soc. ent. Belgique 1905; *H. soriculus*, p. 143, *sanguinipes*, p. 144, Java, BREDDIN, Mt. Mus. Hamburg xxii : n. spp.
Hypsosoma matsumurae, Japan, HORVÁTH, p. 417, Ann. Mus. Hungar. iii, n. sp.
Piezostethus congoensis, Congo, BERGROTH, p. 386, Ann. Soc. ent. Belgique 1905, n. sp.

CAPSIDÆ.

[Cf. BREDDIN (180), HEIDEMANN (734), HORVÁTH (776, 779), KIRKALDY (856), REUTER (300, 1259, 1262).]

- Adelphocoris torquatus*, p. 12, *apicalis*, *divergens*, p. 13, *luridus*, p. 14, *fasciiger*, p. 17, *tæniophorus*, p. 18, China, REUTER, Annaire Mus. St. Petersb. 1905; *A. demissus*, Japan, HORVÁTH, p. 418, Ann. Mus. Hungar. iii : n. spp.
Amblytylus scutellaris, Spain, HORVÁTH, p. 274, Bol. Soc. espan. v, n. sp.
Atractotomus nitidus, Spain, HORVÁTH, p. 275, t. c. n. sp.
Chlamydatus longirostris Hérault, REUTER, p. 8, Bull. Soc. ent. France 1905, n. sp.
Cobalorrhynchus n. g. *Bryocoraria*, p. 1, *biquadrangulifer* n. sp., China, p. 2, REUTER, Annaire Mus. St. Petersb. 1905.
Cyphodema hilare, Japan, HORVÁTH, p. 419, Ann. Mus. Hungar. iii, n. sp.
Dercocoris ater var. *n. amplus*, HORVÁTH, p. 419, t. c.
D. pallidus, p. 419, *elegantulus*, p. 420, Japan, id. t. c. n. spp.
Dicyphus nigritrons, China, REUTER, p. 61; Annaire Mus. St. Petersb. 1905, n. sp.

- Ectenellus* n. g. near *Phylidea*, p. 66, *tibialis* n. sp., China, p. 67, REUTER, t. c.
Ectmetopterus n. g. near *Halticus*, p. 59, *angusticeps* n. sp., China, p. 60, REUTER, t. c.
Eucharicoris n. g. near *Phylus*, p. 64, *pallidipennis* n. sp., China, p. 65, REUTER, t. c.
Halticus micantulus, Japan, HORVÁTH, p. 422, Ann. Mus. Hungar. iii, n. sp.
Imogen n. g. p. 337, *formosa* n. sp., New Britain, p. 338, KIRKALDY, Tr. ent. Soc. London 1905.
Læmocoris? *javanus*, Borobudur, BREDDIN, p. 149, Mt. Mus. Hamburg xxii, n. sp.
Leucodellus n. g. near *Plagiognathus*, p. 68, *albidus* n. sp., China, p. 69, REUTER, Annaire Mus. St. Petersb. 1905.
Liistonotus n. g. near *Liocoris*, p. 54, *xanthomelas*, p. 55, n. sp., Gansu, REUTER, t. c.
Liocoridea melanostoma, China, REUTER, p. 53, t. c. n. sp.
Lopistus n. n. for *Lopus* Spin. nec Hahn, KIRKALDY, p. 268, Wien. ent. Zeit. xxiv.
Lygus flavigenis, Japan, HORVÁTH, p. 419, Ann. Mus. Hungar. iii; *L. rugosicollis*, p. 28, *longipennis*, p. 29, *striicornis*, p. 31, *pulchellus*, p. 33, *potanini*, p. 35, *dasypterus*, p. 37, *trivittulatus*, p. 39, *clavicornis*, p. 41, *validicornis*, p. 42, *bianchii*, p. 44, China, REUTER, Annaire Mus. St. Petersb. 1905 : n. spp.
Mecomma chinensis, Schubagu, REUTER, p. 63, t. c. n. sp.
Orthocephalus beresovskii, Gansu, REUTER, p. 57, t. c. n. sp.
Pachytomella cursitans, Cantabrian Mts., REUTER, p. 53, Tr. ent. Soc. London 1905, n. sp.
Pantiliodes piceus, China, REUTER, p. 7, Annaire Mus. St. Petersb. 1905, n. sp.
Phytocoridea n. g. near *Phytocoris*, p. 21; *dispar* n. sp., China, p. 22, REUTER, t. c.
Phytocoris potanini, China, REUTER, p. 4, t. c. n. sp.
Pilophorus setulosus, Japan, HORVÁTH, p. 421, Ann. Mus. Hungar. iii, n. sp.
Plagiognathus lividus, China, REUTER, p. 73, Annaire Mus. St. Petersb. 1905, n. sp.
Psallus holomelas, p. 69, *alpestris*, p. 70, *opacus*, p. 72, China, REUTER, t. c.; *P. juniperi*, New York, HEIDEMANN, p. 49, J. N. York Ent. Soc. xiii : n. spp.
Pseudoloxops n. n. for *Loxops*, Fieb. *P. coccinatus* n. n. for *coccineus* Mey., KIRKALDY, p. 268, Wien. ent. Zeit. xxiv.
Reuteroscopus n. n. for *Episcopus* Reut., KIRKALDY, p. 268, t. c.
Stenodema rubrinerve, Japan, HORVÁTH, p. 417, Ann. Mus. Hungar. iii, n. sp.
Sthenarus potanini, p. 77, *pallidipes*, p. 78, *interruptus*, p. 79, *niveoarcatus*, p. 80, REUTER, Annaire Mus. St. Petersb. 1905, n. spp.
Strongylocoris obscurus var. n. *oberthuri*, REUTER, p. 8, Bull. Soc. ent. France 1905.

HYDROCORISÆ.

[Cf. BORDAS (138, 139), BREDDIN (180, 185), BUENO (208, 209, 211–213), HORVÁTH (776), HÜEBER (795), KIRKALDY (862), MONTANDON (1058, 1059), WIELOWIEYSKI (1631).]

Making collections, BUENO, Canad. Ent. 1905, pp. 137–142.

German *Hydrocorisæ*, HÜEBER, Jahresh. Ver. Wurttemb. lxi, pp. 91–175.

- Primary reprod. organs, ♂ *Nepa*, BORDAS, C.R. Soc. Biol. lviii, pp. 382–384.
 Alimentary canal, *Nepa*, BORDAS, t. c. pp. 169, 170.
- Anisops occipitalis*, Java, BREDDIN, p. 153, Mt. Mus. Hamburg xxii, n. sp.
Enithares intricatus, Java, BREDDIN, p. 154, t. c. n. sp.
Gelastocoridae, the American, BUENO, p. 290, Ohio Natural. v.
Ilyocoris cimicoides, natural history, KIRKALDY, pp. 173–176, Entomologist 1905.
Matinus americanus, Brazil, MONTANDON, p. 404, Ann. Mus. Hungar. iii, n. sp.
Micronecta, table and characters of Javanese, BREDDIN, pp. 155–160, Mt. Mus. Hamburg xxii.
M. vanduzei, Philippines, *thelxinae*, *memonoides*, Ceylon, annæ, p. 262, erato, p. 263, Australia, KIRKALDY, Ent. News Philad. xvi; *M. quadristrigata*, *fugitans*, *ludibunda*, *pardalina*, *inflatula*, Java, BREDDIN, p. 57, Soc. ent. xx; *M. sedula*, Japan, HORVÁTH, p. 423, Ann. Mus. Hungar. iii : n. spp.
Mononyx peruviana, Callanga, MONTANDON, p. 403, Ann. Mus. Hungar. iii, n. sp.
Nerthra stygica, pp. 287–289, BUENO, Ohio Natural. v.
Notonecta glauca, migration, PROWAZEK, p. 67, Zeitschr. Insbiol. i.
N. howardi, Arizona, BUENO, p. 151, J. N. York Ent. Soc. xiii, n. sp.
Pelocoris horvathi, Brazil, MONTANDON, p. 405, Ann. Mus. Hungar. iii, n. sp.
Ranatra, stridulation, BUENO, pp. 85–87, Canad. Ent. 1905; *R. longipes* and *varipes*, BREDDIN, p. 152, Mt. Mus. Hamburg xxii.
R. parvata, p. 389, *annulipes*, p. 393, *macrophthalma*, p. 395, *unidentata*, p. 397, MONTANDON, Bull. Soc. Bucarest xiv; *R. stali*, Philippines, p. 390, *brevicauda*, p. 391, *signoreti*, p. 392, Brazil, *robusta*, Columbia and Surinam, p. 396, MONTANDON, t. c.; *R. kirkaldyi*, N. America, BUENO, p. 187, Canad. Ent. 1905 : n. spp.

HOMOPTERA.

CICADIDÆ.

[Cf. BREDDIN (181), DISTANT (422–432, 670), IMHOFF (804), JACOBI (806), KIRKALDY (856), KUHLGATZ (899), UHLER (1515).]

Structure of the wings of *Cicadidae*, IMHOFF, Zeitschr. wiss. Zool. lxxxiii, pp. 211–223.

- Abagazara* n. g. type *Callipsaltria bicolorata* Dist., DISTANT, p. 206, Ann. Nat. Hist. (7) xvi.
Abricta castanea, N. Australia, p. 27, *burgessi*, Queensland, p. 28, DISTANT, t. c.; *A. elseyi*, N. Australia, DISTANT, p. 281, t. c. : n. spp.
Abroma boweringi, China, DISTANT, p. 32, Ann. Nat. Hist. (7) xvi; *A. philippinensis*, Palouan, DISTANT, p. 561, t. c.; *A. kedenburgi*, Banguey, BREDDIN, p. 221, Mt. Mus. Hamburg xxii : n. spp.
Adenia n. g. *Parnisaria*, p. 210, *yerburyi* n. sp., Aden, p. 311, DISTANT, Ann. Nat. Hist. (7) xvi.
Ahomana n. g. *Tibicinaria*, p. 23, *neotropicalis*, Peru, *chilensis*, Chile, p. 24, n. spp., DISTANT, t. c.
Akamba n. g. *Chlorocystaria*, *aethiopica* n. sp., Trop. Africa, DISTANT, p. 562, t. c.
Aola n. g. type *Pomponia bindusara* Dist., DISTANT, p. 69, op. cit. xv.
Arfaka n. g. type *Cephaloxys fulva* Walk., DISTANT, p. 276, op. cit. xvi.
Ariasa n. g. type *Tympanoterpes colombiae* Dist., *A. nigrovittata* n. sp., Brazil, DISTANT, p. 314, op. cit. xv.

- Ayesha* n. g. type *Cosmopsaltria spathulata* Stål, DISTANT, p. 63, t. c.
Balinta n. g. type *Cicada octonotata* Westw., p. 383, *B. auriginea* n. sp.,
 Mts. Song-Chai, p. 384, DISTANT, t. c.
Basa n. g. type *Dundubia singularis* Walk., DISTANT, p. 309, t. c.
Bavea n. g. type *Cephaloxys concolor* Walk., the habitat being S. Africa,
 DISTANT, p. 214, op. cit. xvi.
Burbunga n. g. type *Tibicen gilmorei* Dist., *B. inornata* n. sp., W.
 Australia, DISTANT, p. 29, t. c.
Carineta boliviiana, p. 484, *illustris*, p. 485, *peruviana*, p. 486, S. America,
 DISTANT, op. cit. xv, n. spp.
Champaka n. g. type *Pomponia viridimaculata* Dist., DISTANT, p. 70, t. c.
Chonosia n. g. type *Fidicina crassipennis* Walk., DISTANT, p. 481, t. c.
Cicada grossa, synonymy, UHLER, p. 76, Ent. News Philad. xvi; *C. nubifurca* Walk. to *Abroma* (cf. *Panka* below), DISTANT, p. 35, Ann. Nat. Hist. (7) xvi; *C. complex* Walk., note, DISTANT, p. 274, t. c.; *C. hirundo* Walk. and *conifacies* Walk. to *Purana* ?, *C. nodosa* and *acutipennis* Walk. to *Diceropyga* ?, *C. stipata* Walk. to *Terpnosia* ?, DISTANT, p. 553, t. c.
C. pulverulenta, Madagascar and Seychelles, DISTANT, p. 199, Tr. ent. Soc. London 1905; *C. tridentigera*, p. 220, *nesiotes*, p. 221, Banguey, BREDDIN, Mt. Mus. Hamburg xxii; *C. townsendii*, Arizona, UHLER, p. 74, Ent. News Philad. xvi : n. spp.
Collina n. g. near *Tibicen*, for *Odopea biolleyi* (cut on p. 143) and *medea*, DISTANT, Biol. Centr.-Amer. Homopt. i.
Conibosa n. g. type *Cephaloxys occidentalis* Walk., DISTANT, p. 215, Ann. Nat. Hist. (7) xvi.
Cosmopsaltria tonkiniana, Tonkin, JACOBI, p. 429, pl. xxi, fig. 1, Zool. Jahrb. Syst. xxi; *C. alticola*, Borneo, DISTANT, p. 200, Tr. ent. Soc. London 1905 : n. spp.
Daza n. g. type *Zammara montezuma* Walk., DISTANT, p. 480, Ann. Nat. Hist. (7) xv.
Derotettix wagneri, Rio Salado, DISTANT, p. 209, op. cit. xvi, n. sp.
Diceropyga boninensis, Bonin Ids., DISTANT, p. 67, op. cit. xv; *D. aluana*, Solomon Ids., DISTANT, p. 557, op. cit. xvi : n. spp.
Diemenia n. g. type *Cicada coleoptrata* Walk., DISTANT, p. 206, t. c.
Dokuma n. g. type *Dundubia nigristigma* Walk., DISTANT, p. 69, op. cit. xv.
Drepanopsaltria merged in *Prasia*, DISTANT, p. 278, op. cit. xvi.
Dulderana n. g. type *Cicada truncatella* Walk., DISTANT, p. 280, t. c.
Dundubiaria, synopsis of genera, DISTANT, pp. 58–70, op. cit. xv.
Fatima n. g. type *Cosmopsaltria capitata* Dist., DISTANT, p. 62, t. c.
Fidicina roberti, p. 315, *lacteipennis*, p. 316, Brazil, *flavibasalis*, Ecuador, p. 317, DISTANT, t. c. n. spp.
Gæana vestita, Yunnan, DISTANT, p. 121, Entomologist 1905, n. sp.
Gazuma n. g. *Tibicininae*, *barrettæ*, *delalandei*, *pretoria* n. spp., S. Africa, DISTANT, p. 268, Ann. Nat. Hist. (7) xvi.
Graptotextix rubromaculatus, Celebes, DISTANT, p. 482, op. cit. xv, n. sp.
Guaranisaria n. g. *Carinetaria*, *dissimilis* n. sp., Argentina, DISTANT, p. 560, op. cit. xvi.
Gudanga n. g. *Parnisaria*, *boulayi* n. sp., W. Australia, DISTANT, p. 208, t. c.
Gymnotympana olivacea, New Guinea, DISTANT, p. 563, t. c. n. sp.
Haphsa n. g. type *Dundubia nicomache* Walk., *H. crassa* n. sp., Yunnan, DISTANT, p. 64, op. cit. xv.
Hemisciera durhami, Brazil, DISTANT, p. 317, t. c. n. sp.
Herrera n. g. type *Cicada marginella* Walk., DISTANT, p. 486, t. c.
Hovana n. g. type *Hemidictya distanti* Brancs., DISTANT, p. 279, op. cit. xvi.

- Inyamana* n. g. *Tibicininae*, p. 266, *haemaris*, *ochracea* n. spp., E. Africa p. 267, DISTANT, t. c.
- Iruano* n. g. near *Lacetas*, *sulcata* n. sp., E. Africa, DISTANT, p. 278, t. c.
- Jacatra* n. g. *Tibicininae*, *typica* n. sp., Java, DISTANT, p. 277, t. c.
- Kamalata javanensis*, Java, DISTANT, p. 308, op. cit. xv, n. sp.
- Khimbya* n. g. type *Dundubia evanescens* Walk., DISTANT, p. 307, t. c.
- Kongota muiri*, Natal, DISTANT, p. 671, op. cit. xvi, n. sp.
- Koranna* n. g. *Parnisaria*, *analis* n. sp., E. Africa, DISTANT, p. 207, t. c.
- Kumanga* n. g. type *Bacturia sandaracata* Dist., DISTANT, p. 215, t. c.
- Lahugada* n. g. type *Pomponia dohertyi* Dist., DISTANT, p. 304, op. cit. xv.
- Lahugadaria*, division defined, DISTANT, p. 304, t. c.
- Lemuriana* n. g. type *Cicada apicalis* Germ., p. 32, *L. flavocostata*, E. Africa, *sikorae*, Madagascar, p. 33, n. spp., DISTANT, op. cit. xvi.
- Lethama* n. g. type *Cephaloxys locusta* Walk., DISTANT, p. 308, op. cit. xv.
- Majeorona* n. g. type *Fidicina aper* Walk., *M. bovilla* n. sp., Chapada, DISTANT, p. 318, t. c.
- Mapondera* n. g. type *Cicada pulchella* Stål, DISTANT, p. 212, op. cit. xvi.
- Mardalana* n. g. for *Cicada congrua* Walk. = (*Chlorocysta macrula* Stål), DISTANT, p. 215, t. c.
- Masupha dregei*, S. Africa, DISTANT, p. 208, t. c. n. sp.
- Maua* n. g. type *Cicada quadrifurculata* Sign., *M. affinis* n. sp., Borneo, DISTANT, p. 61, op. cit. xv.
- Meimuna* n. g. type *Dundubia tripurasura* Dist., DISTANT, p. 67, t. c.
- Melampsalta godingi*, Australia, *aethiopica*, Zomba, p. 270, *waterhousei*, *lactea*, p. 271, *issooides*, p. 272, Australia, DISTANT, op. cit. xvi, n. spp.
- Miranha* n. g. type *Zammara imbellis* Walk., DISTANT, p. 381, op. cit. xv.
- Mogannia caesar*, pl. 21, fig. 4, p. 433, JACOBI, Zool. Jahrb. Syst. xxi.
- M. mandarina*, Hong Kong, p. 385, *horsfieldi*, Java, p. 386, DISTANT, Ann. Nat. Hist. (7) xv, n. spp.
- Monomatapa socotrina*, Socotra, DISTANT, p. 31, op. cit. xvi, n. sp.
- Munza revoili*, Somaliland, DISTANT, p. 192, pl. xi, fig. 5, Tr. ent. Soc. London 1905, n. sp.
- Mura* n. g. *Tibicininae*, *elegantula* n. sp., Panama, DISTANT, p. 144, Biol. Centr.-Amer. Homopt. i.
- Nelcynda madagascariensis*, Madagascar, DISTANT, p. 35, Ann. Nat. Hist. (7) xvi, n. sp.
- Odopea perspicua*, São Thomé, DISTANT, p. 380, op. cit. xv, n. sp.
- Okanaganana* n. g. type *Cicada rimosa* Say, DISTANT, p. 23, op. cit. xvi.
- Ollanta* n. g. type *mexicana* Dist., DISTANT, p. 313, op. cit. xv.
- O. mexicana*, Atoyac, DISTANT, p. 141, Biol. Centr.-Amer. Homopt. i, n. sp.
- Oncotympana virescens*, Tibet, DISTANT, p. 201, Tr. ent. Soc. London 1905 ; *O. fuscata*, N. China, p. 558, *stratoria*, Yunnan, p. 559, DISTANT, Ann. Nat. Hist. (7) xvi : n. spp.
- Orapa* n. g. type *Pycna numa* Dist., DISTANT, p. 480, op. cit. xv.
- Orellana* n. g. type *Zammara columba* Dist., p. 381, *O. brevis* n. sp., Colombia, p. 382, DISTANT, t. c.
- Pacarina* n. g. type *Cicada signifera* Walk., DISTANT, p. 314, t. c. ; *P. schumannii*, Mexico, DISTANT, p. 142, Biol. Centr.-Amer. Homopt. i : n. sp.
- Paharia* n. g. type *Cephaloxys lacteipennis* Walk., DISTANT, p. 25, Ann. Nat. Hist. (7) xvi.
- Panka* n. g. type *simulata* Dist. = (*Tibicen nubiferca* Dist.), p. 34, *P. africana* n. sp., Fernando Po, p. 35, DISTANT, t. c.

- Parnkalla* n. g. type *Tibicen mulleri* Dist., DISTANT, p. 29, t. c.
Parvityya n. g. near *Graptotettix*, p. 482, *samara* n. sp., Philippines, p. 483, DISTANT, op. cit. xv.
Pauropsalta stigmatica, *damelii*, Australia, DISTANT, p. 273, op. cit. xvi, n. spp.
Platylomia Stål recharacterised, *assamensis*, Assam, p. 65, *virescens*, Borneo, *albomaculata*, Philippines, p. 66, DISTANT, op. cit. xv; *P. juno*, p. 200, *diana*, p. 201, Ta-tsien-low, DISTANT, Tr. ent. Soc. London 1905 : n. spp.
Platypleura attenuata, Nigeria, DISTANT, p. 554, Ann. Nat. Hist. (7) xvi ; *P. spicata*, Madagascar, p. 192, *seraphina*, p. 193, *esa*, p. 194, Africa, DISTANT, Tr. ent. Soc. London 1905 ; *P. lineatella*, Sunda Ids., *lindiana*, E. Africa, p. 668, *murchisoni*, Transvaal, p. 669, *ridleyana*, Malacca, *harmandi*, Cochin China, p. 670, DISTANT, Ann. Nat. Hist. (7) xvi ; *P. vitreolimbata*, Banguey, BREDDIN, p. 218, Mt. Mus. Hamburg xxii : n. spp.
Plautillaria; n. div., *Plautilla* Stål, characters, DISTANT, p. 563, Ann. Nat. Hist. (7) xvi.
Pomponia piceata, Tonkin, DISTANT, p. 558, t. c. ; *P. merula*, Borneo, *intermedia*, Tenasserim, DISTANT, p. 68, op. cit. xv, n. spp.
Proarna germari n. n. for *Cicada grisea* Germ., DISTANT, p. 140, Biol. Centr.-Amer. Homopt. i.
P. insignis, Centr. and S. America = (*albida* var. *insignis*), id. p. 141 ; *P. heidemanni*, p. 311, *bufo*, p. 312, Argentina, DISTANT, Ann. Nat. Hist. (7) xv : n. spp.
Purana n. g. type *Dundubia tigrina*, DISTANT, p. 60, t. c. ; *P. davidi*, Kiang-Si, *pigmentata*, Siam, DISTANT, p. 555, op. cit. xvi, n. spp.
Pycna natalensis, Natal, DISTANT, p. 197, pl. xi, fig. 4, Tr. ent. Soc. London 1905, n. sp.
Quesada n. g. type *Cicada gigas* Ol., DISTANT, p. 478, Ann. Nat. Hist. (7) xv.
Quintilia souliei, Yunnan, DISTANT, p. 561, op. cit. xvi ; *Q. mogannia*, China, *maculiventris*, Transvaal, DISTANT, p. 205, t. c. n. spp.
Rihana martini, *hova*, Madagascar, DISTANT, p. 198, Tr. ent. Soc. London 1905, n. spp.
Sadaka hyalina, W. Africa, DISTANT, p. 191, t. c. n. sp.
Sapantanga n. g. type *Cephaloxys nutans* Walk., DISTANT, p. 276, Ann. Nat. Hist. (7) xvi.
Sawda n. g. type *Cosmopsaltria mimica* Dist., *S. gestroei* n. sp., New Guinea, DISTANT, p. 63, op. cit. xv ; *S. pratti*, p. 556, *sharpi*, p. 557, New Guinea, DISTANT, op. cit. xvi, n. spp.
Sena n. g. type *Cicada querula* Pall., DISTANT, p. 307, op. cit. xv.
Stagira darwini, Mauritius, DISTANT, p. 213, op. cit. xvi, n. sp.
Taipinga n. g. type *Cicada nana* Walk., DISTANT, p. 210, t. c.
Talainga distanti, pl. 21, fig. 3, p. 432, JACOBI, Zool. Jahrb. Syst. xxi.
Tamasa n. g. type *Cicada tristigma* Germ., DISTANT, p. 386, Ann. Nat. Hist. (7) xv.
Tanna n. g. type *Pomponia japonensis*, DISTANT, p. 62, t. c.
Terpnosia confusa, India, DISTANT, p. 306, t. c. n. sp.
Tibicen reductus, pl. 21, fig. 5, p. 434, JACOBI, Zool. Jahrb. Syst. xxi.
T. dahli, Bismarck Arch., KUHLGATZ, p. 77, pl. iii, figg. 10 & 13, Mt. Mus. Berlin iii, n. sp.
Tibicina chinensis, N. China, DISTANT, p. 23, Ann. Nat. Hist. (7) xvi, n. sp.
Trismarcha atrata, Congo, *angolensis*, Angola, DISTANT, p. 30, t. c. n. spp.
Tymanopterpes alboapicata, Argentina, DISTANT, p. 313, op. cit. xv, n. sp.
Ueana n. g. type *Cicada lifuana* Montr., DISTANT, p. 28, op. cit. xvi ; *U. harmonia*, pl. xvii, fig. 1, *polymnia*, fig. 2, Lifu, KIRKALDY, p. 329, Tr. ent. Soc. London 1905, n. spp.

- Umjada alluaudi*, Madagascar, DISTANT, p. 196, pl. xi, fig. 1, Tr. ent. Soc. London 1905, n. sp.
Urabunana n. g. *Tibicininae*, *segmentaria* n. sp., Queensland, DISTANT, p. 274, Ann. Nat. Hist. (7) xvi.
Xosopsaltria fuliginosa, E. Africa, DISTANT, p. 206, t. c. n. sp.
Yanga bouvieri, p. 194, pl. xi, fig. 2, *grandidieri*, p. 195, fig. 3, Madagascar, DISTANT, Tr. ent. Soc. London 1905, n. spp.

FULGORIDÆ.

[Cf. BALL (69), BREDDIN (181), DISTANT (429, 430, 670), FOWLER (670), HORVÁTH (775), JACOBI (806), KIRKALDY (856), LESNE (941, 944), MELICHAR (1029, 1030), OSBORN (1125), ROUBAL (1308), SCHMIDT (1332, 1333), TORKA (1501).]

- Achæmenes niger*, Usambara, MELICHAR, p. 283, Wien. ent. Zeit. xxiv, n. sp.
Aemonia? *sanguinalis*, Mexico, pl. xiii, fig. 24, DISTANT, p. 145, Biol. Centr.-Amer. Homopt. i, n. sp.
Acræphia crepusculascens, pl. xiii, fig. 25, *montezuma*, p. 144, *simillima*, *astralis*, fig. 27, p. 145, DISTANT, t. c. n. spp.
Anecphora minor, p. 369, *olivacea*, *sanguineopunctata*, p. 370, *sanguinea*, p. 371, W. Africa, SCHMIDT, Stettin Ent. Zeit. lxvi, n. spp.
Anigrus fuscomaculatus, E. Africa, MELICHAR, p. 284, Wien. ent. Zeit. xxiv, n. sp.
Aphena bimaculata, Sumatra, SCHMIDT, p. 376, Stettin Ent. Zeit. lxvi, n. sp.
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Eodelphax serendiba = (*Eudelphax setulosus* Mel.), KIRKALDY, p. 266, Wien. ent. Zeit. xxiv.
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Lichena incriminata, Madagascar, SCHMIDT, p. 380, Stettin Ent. Zeit. lxvi, n. sp.
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Megamelus angulatus, Pennsylvania, OSBORN, p. 374, t. c. n. sp.
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Phylliphanta birarae, New Britain, KIRKALDY, p. 335, Tr. ent. Soc. London 1905, n. sp.
Phyma usambarensis, E. Africa, MELICHAR, p. 289, Wien. ent. Zeit. xxiv, n. sp.
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- R. bitaniata*, Borneo, p. 174, *lurida*, Java, p. 176, *quinqe punctata*, E. Africa, p. 195, SCHMIDT, Stettin Ent. Zeit. lxvi : n. spp.
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Sassula apicalis, Ecuador, SCHMIDT, p. 189, Stettin Ent. Zeit. lxvi, n. sp.
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Sephena nigrifrons, Australia, SCHMIDT, p. 378, Stettin Ent. Zeit, lxvi, n. sp.
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- Anchon minor*, E. Africa, MELICHAR, p. 296, Wien. ent. Zeit. xxiv, n. sp.
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- [Cf. JACOBI (805, 806), KIRKALDY (856), MELICHAR (1029).]
- Aufidus hyperion*, New Britain, KIRKALDY, p. 332, pl. xvii, fig. 4, Tr. ent. Soc. London 1905, n. sp.
Clovia birarensis, p. 330, pl. xvii, fig. 3, *dryas*, p. 331, New Britain, KIRKALDY, t. c. n. spp.
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Annidion n. g. near *Hecalus*, p. 267, *pulcherrimum* n. sp., Bouake, p. 268, KIRKALDY, Wien. ent. Zeit. xxiv.
Deltoccephalus litiputanus, E. Africa, MELICHAR, p. 303, Wien. ent. Zeit. xxiv; *D. slossoni*, Florida, p. 119, *littoralis*, New Jersey, p. 120, BALL P. Soc. Washington xviii : n. spp.
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Eupteryx quinquemaculata, California, BAKER, p. 8, t. c. n. sp.
Eutettix ramosus, E. Africa, MELICHAR, p. 302, Wien. ent. Zeit. xxiv; *E. bicolorata*, Arkansas, BALL, p. 212, Canad. Ent. 1905 : n. spp.
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- Platyretus cinctus*, E. Africa, MELICHAR, p. 301, Wien. ent. Zeit. xxiv, n. sp.
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Selenocephalus strigulatus, *usambaræ*, E. Africa, MELICHAR, p. 300, Wien. ent. Zeit. xxiv, n. sp.
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Wolfella lata, E. Africa, MELICHAR, p. 299, Wien. ent. Zeit. xxiv, n. sp.
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PSYLLIDÆ.

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(F.) *NEUROPTERA*, s. l.

TRICHOPTERA.

[Cf. BANKS (71, 72), BUCHNER (207), Klapálek (868), MARSHALL & VORHIES (1013), MORTON (1074, 1075), RIS (1268, 1269), THIENEMANN (1491, 1492), ULMER (1517-1520).]

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Atomya modesta, N. Carolina, BANKS, p. 217, t. c. n. sp.

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Chimarrha morio Burm., pl. ii, figg. 74, 75, p. 94, ULMER, t. c.

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- Ithytrichia clavata*, p. 67, *confusa*, p. 69, New York, MORTON, t. c. n. spp.
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- L. punctata*, figg. 38, 39, Brazil, *jensenii*, Argentina, figg. 40-43, ULMER, p. 76, t. c.; *L. mulleri*, Sta. Catharina, pl. iii, figg. 94, 95, p. 29, ULMER, Stettin Ent. Zeit. lxvi : n. spp.
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- L. amurensis*, Amur land, pl. i, figg. 4, 5, p. 8, *appendix*, Centr. Asia, p. 9, figg. 6, 7, ULMER, t. c.; *L. meridionalis*, Patagonia, ULMER, p. 18, Ann. Soc. ent. Belgique 1905 : n. spp.
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- Marilia albicornis* Burm., pl. i, figg. 20–22, p. 24, *major* Müll., pl. iii, fig. 91, p. 25, ULMER, t. c.
- M. flexuosa*, Santa Catharina, ULMER, p. 70, Ann. Hofmus. Wien xx, n. sp.
- Molanna moesta*, Japan, BANKS, p. 110, P. ent. Soc. Washington vii, n. sp.
- Moropsyche* n. g. *Limnophilides*, *parvula* n. sp., Japan, BANKS, p. 108, t. c.
- Musarna*, the species, ULMER, p. 22, pl. i, fig. 19, Stettin Ent. Zeit. lxvi.
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- Nemotaulus* n. g. type *Gr. brevilinea* McL., BANKS, p. 107, P. ent. Soc. Washington vii.
- Neotrichia* n. g. *collata* n. sp., N. America, MORTON, p. 72, Bull. N. York Mus. lxxxvi.
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- Nothopsyche* n. g. for *Chilostigma ruficolle* Ulm., and *N. pallipes* n. sp., Japan, BANKS, p. 107, P. ent. Soc. Washington vii.
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- Orthotrichia brachiata*, New York, MORTON, p. 70, Bull. N. York Mus. lxxxvi, n. sp.
- Oxyethira coercens*, p. 70, *viminalis*, *dualis*, p. 71, N. America, MORTON, t. c. n. spp.
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- Phryganea rotundata*, Lake Balkasch, pl. i, fig. 1, p. 5, ULMER, Stettin Ent. Zeit. lxvi; *P. latipennis*, Japan, BANKS, p. 107, P. ent. Soc. Washington vii : n. spp.
- Phylloicus*, p. 77, fig. 45, *œneus* Hag., p. 79, fig. 49, ULMER, Ann. Hofmus. Wien xx.
- P. angustior*, Brazil, p. 78, figg. 46–48, ULMER, t. c. n. sp.
- Platycentropus* n. g. for *Halesus maculipennis* Kol., ULMER, p. 13, Stettin Ent. Zeit. lxvi.
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- Polycentropus carolinensis*, N. Carolina, BANKS, p. 217, t. c. n. sp.
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- Polyplectropus* n. g. *Polycentropina*, *flavicornis* n. sp., Sta. Catharina, ULMER, p. 103, pl. iv, figg. 132–135, Stettin Ent. Zeit. lxvi; *P. annulicornis*, Brazil, fig. 64, *javanicus*, Java, figg. 65–67, ULMER, p. 91, Ann. Hofmus. Wien xx : n. spp.
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- P. splendens*, Gaboon, pl. iii, fig. 106, p. 65, ULMER, Stettin Ent. Zeit. lxvi, n. sp.
- Pseudomacronema* n. g. near *Macronema*, p. 86, *vittatum* n. sp., Bogota, p. 87, pl. ii, fig. 73, ULMER, t. c.
- Pseudosetodes* n. g. near *Setodes*, p. 76, figg. 44, *punctipennis* n. sp., Brazil, p. 77, ULMER, Ann. Hofmus. Wien xx.
- Psilochorema indicum*, India, ULMER, p. 39, Ann. Soc. ent. Belgique 1905; *P. longipenne* (no locality), pl. iv, figg. 144–146, p. 110, ULMER, Stettin Ent. Zeit. lxvi : n. spp.
- Rhabdoceras* n. g. *Leptoceridae*, p. 31, *japonicum*, Japan, n. sp., p. 32, ULMER, t. c.
- Rhyacophila tristis*, *aquitonica*, *philopotamoides*, larvæ, THIENEMANN, pp. 285–287, Zeitschr. Insbiol. i.
- R. maculipennis*, Kuku-Nor., pl. ii, figg. 80, 81, p. 108, ULMER, Stettin Ent. Zeit. lxvi; *R. excisa*, Moupin, ULMER, p. 37, Ann. Soc. ent. Belgique 1905 : n. spp.
- Rhyacophylax columbianus*, pl. iv, figg. 138–140, p. 106, *brasiliensis*, figg. 141–143, p. 108, S. America, ULMER, Stettin Ent. Zeit. lxvi, n. spp.
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- Smicridea nivea* Billopp., pl. iv, figg. 136, 137, p. 104, ULMER, Stettin Ent. Zeit. lxvi, n. sp.
- Stenophylax latus*, Centr. Asia, pl. i, fig. 8, ULMER, p. 11, t. c. n. sp.
- Synagapetus ater*, Transsylvania, Klapálek, p. 729, Vestnik Ceske Ak. xiii, n. sp.
- Synæstropsis* n. g. near *Oestropsis*, *pedicillata*, pl. iii, figg. 97–100, p. 43, *obliqua*, fig. 101, p. 45, *punctipennis*, pl. i, fig. 34, p. 47, n. spp., S. America, ULMER, Stettin Ent. Zeit. lxvi.
- Tetanonema* n. g. near *Helicopsyche*, p. 17, *clarum* n. sp., Sta. Catharina, p. 18, ULMER, t. c.
- Triænodes albicornis*, Algiers, ULMER, p. 23, Ann. Soc. ent. Belgique 1905, n. sp.

- Triplectides* and *Notantolica*, ULMER, p. 71, Ann. Hofmus. Wien xx; *Triplectides*, p. 29, *T. gracilis* Burm., pl. i, figg. 23–25, p. 27, ULMER, Stettin Ent. Zeit. lxvi.
Wormaldia mexicana, Mexico, p. 89, figg. 58–60, *parva*, Brazil, p. 90, figg. 61–63, ULMER, Ann. Hofmus. Wien xx, n. spp.

NEUROPTERA-PLANIPENNIA (incl. PANORPIDÆ).

[Cf. BAKER (64), BANKS (71), CURRIE (383), DZIEDZIELEWICZA (485), ENDERLEIN (512, 514), KŁAPÁLK (868), NAVÁS (1084, 1085), NEEDHAM (1092), TERRY (1475), VAN DER WEELE (1595).]

- ENDERLEIN in Zool. Anz. xxix, pp. 225–227, sketches his paper on *Coniopterygidae* and proposes and tabulates the new generic names. *Ancylopteryx buttikoferi*, Liberia, VAN DER WEELE, Notes Leyden Mus. xxv, p. 166, n. sp.
Ascalaphus kheili, Japan, NAVÁS, p. 49, pl. ii, fig. 1, Bol. Soc. Aragon. iv, n. sp.
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Coniopterygidae of Silesia, monograph, in Polish, DZIEDZIELEWICZA, pp. 377–385, 1 plate, Kosmos polski. xxx.
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Hemerobius striatellus, Transsylvania, KŁAPÁLK, p. 725, Vestnik Ceske Ak. xiii, n. sp.
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Palmobius n. g. type *H. amiculus* Fitch, NEEDHAM, p. 17, Bull. N. York Mus. lxxxvi.
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Semidalis n. g. for *Coniopteryx aleurodiformis* Steph., ENDERLEIN, p. 197, t. c.
Sisyrra n. g. near *Sisyra*, *pectinata* n. sp., Shanghai, NAVÁS, p. 51, pl. ii, fig. 2, Bol. Soc. Aragon. iv.
Spadobius n. g. type *H. occidentalis* Fitch, NEEDHAM, p. 16, Bull. N. York Mus. lxxxvi.

PSEUDO-NEUROPTERA.

PSOCIDÆ.

- [Cf. ENDERLEIN (497, 507, 513), RIBAGA (1263, 1264), SNODGRASS (1424).]
 Revision of *Atropides* and *Troctides*, with table of the families of *Copeognatha*, ENDERLEIN, Jägerskiöld exp. No. 18, 51 pp.

SNODGRASS, pp. 300–302, describes and figures pl. viii, figg. 9–16, the mouth-parts of *Peripsocus californicus* and of *Troctes divinatorius*, compares them with *Mallophaga* and finds a morphological identity, Tr. Amer. ent. Soc. xxxi.

Parthenogenesis, *Ectopsocus*, RIBAGA, Redia ii, pp. 33–36.

Amphientotum, in amber, cf. Palæoentomology, p. 130.

Embidopsocus luteus Hag., ENDERLEIN, p. 51, fig. 11, Jägerskiöld exp. No. 18. *Embidotroctes* n. g. p. 48, *paradoxus* n. sp., Cameroons, p. 49, ENDERLEIN, t. c.

Lepidilla n. g. subfam. n. *Lepidillinae*, p. 99, *kelloggi* n. sp., California, p. 100, pl. ix, RIBAGA, Redia ii.

Lepinotus reticulatus, Cairo, ENDERLEIN, p. 31, Jägerskiöld exp. No. 18, n. sp.

Myopsocnema n. g. for *Clothilla annulata* Hag., ENDERLEIN, p. 17, t. c.

Pachytroctes n. g. *egyptius* n. sp., Cairo, ENDERLEIN, p. 46, figg. 9, 37–43, t. c.

Philotarsus falklandicus, Falkland Ids., ENDERLEIN, p. 126, Zool. Anz. xxix, n. sp.

Stenotroctes n. g. type *Troctes needhami*, with *S. virgatus* n. sp., S. America, p. 44, figg. 29, 31, 33, ENDERLEIN, Jägerskiöld exp. No. 18. *S. enderleini*, Florence, RIBAGA, p. 106, pl. x, figg. 12–15, Redia ii, n. sp.

MALLOPHAGA.

[Cf. FULMEK (627), GROSS (699), SNODGRASS (1424).]

SNODGRASS describes, pp. 302–305, and figures, pl. viii, figg. 1–8, the mouth-parts of *Læmbothrium gypsis* and *Ancistrona gigas*, compares them with those of *Psocidae* and finds them morphologically identical, Tr. Amer. ent. Soc. xxxi.

Structure of heart, FULMEK, Zool. Anz. xxix, pp. 619–621.

Bird-louse of *Cypselus affinis*, as intermediary host of *Filaria cypseli*, fig. pl. v, DUTTON, p. 139, Thompson Yates Lab. Rep. vi.

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Eggs of "Pediculines" of birds, TEMPÈRE, Microgr. prep. xiii, p. 34, pl. iii, figg. 1–11.

TERMITIDÆ or ISOPTERA.

[Cf. BRUNELLI (203, 204), DESNEUX (401, 402), DOFLEIN (437), ROBINSON (1285), SJÖSTEDT (1404).]

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Belgique 1905; *C. adamsoni* Frogg. to *Porotermes*, DESNEUX, p. 360, Ann. Soc. ent. Belgique 1905; *C.* rendered infertile by *Protozoa*, BRUNELLI, pp. 718–721, Rend. Acc. Lincei xiv, ii.

C. papua, New Guinea, DESNEUX, p. 367, Ann. Mus. Hungar. iii, n. sp.

Eutermes rhinoceros, p. 11, *corniferus*, p. 12, *bycanistes*, p. 14, *lamanianus*, p. 15, *mandibularis*, p. 17, *mirandus*, p. 18, *bettonianus*, p. 19, Africa, SJÖSTEDT, Arkiv Zool. ii, No. 16, n. spp.

Hodotermes macrocephalus, Sind, DESNEUX, p. 344, Ann. Soc. ent. Belgique 1905; *H. pulcher*, Congo, SJÖSTEDT, p. 1, Arkiv Zool. ii, No. 16 : n. spp. *Rhinoterme dimorphus*, New Guinea, DESNEUX, p. 368, Ann. Mus. Hungar. iii, n. sp.

Termites gestroi, natural history, ROBINSON, J. Fed. Malay Mus. i, pp. 2–12; *T. tubiformans*, imago, p. 338, *tenuirostris*, imago, p. 341, *cinerous*, soldier, p. 342, *T. ripperi* subsp. n. *dendrophilus*, p. 357, *T. fatalis*, synonymy, with *kenigi* n. sp. (= *fatalis* Hag.), p. 360, *T. longirostris* Br. to *Rhinoterme*, p. 360, DESNEUX, Ann. Soc. ent. Belgique 1905. *T. apollo*, E. Africa, SJÖSTEDT, p. 6, Arkiv Zool. ii, No. 16; *T. (Coptotermes) elisa*, p. 368, *T. (Eutermes) biroi*, p. 369, with subsp. *brevior*, p. 370, *odontomachus*, p. 371, *grallator*, p. 374, *princeps*, p. 275, *gracilirostris*, p. 376, New Guinea, DESNEUX, Ann. Mus. Hungar. iii; *T. wheeleri*, Texas, p. 340, *mycophagus*, p. 348, *belli*, p. 352, *sindensis*, p. 354, *theobromae*, Sao Thomé, p. 355, *hosei*, Sarawak, p. 356, DESNEUX, Ann. Soc. ent. Belgique 1905 : n. spp.

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The spinning apparatus, RIMSKY-KORSAKOW, Zool. Anz. xxix, pp. 438–442. Abstract of Verhoeff's paper of last year, ADELUNG, Zool. Zentrbl. 1905, pp. 580–585.

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PERLIDÆ or PLECOPTERA.

[Cf. BAKER (64), BANKS (71, 73), ENDERLEIN (504), FROGGATT (615), Klapálek (865, 866, 868), NEEDHAM (1089), REUTER (1258), RIS (1270).]

Amphineumura cinerea, true ♀, RIS, p. 96, Mt. Schweiz. ent. Ges. xi.

Antarctoperla n. g. p. 810, *anderssoni*, p. 811, *fuegiana*, p. 813, n. spp., Tierra del Fuego, ENDERLEIN, Zool. Anz. xxviii.

Arcynopteryx n. g. for *D. compacta* McLachl. etc., Klapálek, p. 7, Rozp. Ceske Ak. Praze xiii, No. 17.

Atoperla n. g. type *Perla producta*, BANKS, p. 56, Psyche xii.

Austroperla n. g. for *Perla cyrene* Newm., NEEDHAM, p. 109, P. Soc. Washington xviii.

Capnia vidua, Transsylvania, Klapálek, p. 723, Vestnik Ceske Ak. xiii, n. sp.

Capnioneura n. g. p. 94, *nemuroides* n. sp., Zurich, p. 95, RIS, Mt. Schweiz. ent. Ges. xi.

Dictyogenus subg. n. of *Isogenus* for *imhoffi* Pict. etc., Klapálek, p. 8, Rozp. Ceske Ak. Praze xiii, No. 17.

Dictyopterygella subg. n. p. 5, with *D. septentrionis* n. sp., Siberia, p. 6, Klapálek, t. c.

Isogenus imhoffi, p. 3, *rubecula*, nymph, p. 8, cuts, Klapálek, t. c.

Leuctra antarctica, Tierra del Fuego, ENDERLEIN, p. 814, Zool. Anz. xxviii, n. sp.

Nemoura japonica, Kiushiu, NEEDHAM, p. 110, P. Soc. Washington xviii, n. sp.

Neoperla n. n. for *Pseudoperla* Banks, NEEDHAM, p. 108, t. c.; *N. pilosella*, Java, Klapálek, p. 103, Mt. Mus. Hamburg xxii : n. sp.

Peltoperla n. g. p. 107, *arcuata* n. sp., New York, p. 108, NEEDHAM, P. Soc. Washington xviii.

- Perla myrmidon* Mab. to *Gripopteryx*, ENDERLEIN, p. 814, Zool. Anz. xxviii.
P. tennina, Japan, NEEDHAM, p. 109, P. Soc. Washington xviii; *P. attenuata*, p. 55, *kansensis*, p. 56, Kánsas, BANKS, Psyche xii; *P. californica*, Claremont, BANKS, p. 87, Invert. pacif. i; *P. carolinensis*, N. Carolina, BANKS, p. 215, Bull. Amer. Mus. xxi: n. spp.
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T. tenuis, Kiushiu, NEEDHAM, p. 110, P. Soc. Washington xviii, n. sp.

EPHEMERIDÆ OR EPHEMEROPTERA.

[Cf. Klapálek (866), Navás (1085), NEEDHAM (1093), Seiler (1375).]

Key to genera of N. American Ephemeroidea, NEEDHAM, pp. 22–26, and of the nymphs, pp. 26–28, pls. iv–xii, Bull. N. York Mus. lxxxvi. In this paper the nymphs of various N. American species are also described and figured.

Investigation of structure and function of ocelli in five species, *Cloeon*, *Baetis*, *Ephemeria*, *Heptagenia*, *Cænis*, SEILER, Zool. Jahrb. Anat. xxii, pp. 1–40, pls. 1, 2.

Ameletus ludens, New York, NEEDHAM, p. 36, Bull. N. York Mus. lxxxvi, n. sp.

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Chirotenetes albomanicatus, N. York, NEEDHAM, p. 31, pls. 5, 6, t. c. n. sp.

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Drunella n. g. pp. 27, 42, for *Ephemerella grandis* ?, NEEDHAM, Bull. N. York Mus. lxxxvi.

Ephemerella bispina, p. 43, *unicornis*, p. 45, Indiana, NEEDHAM, t. c. n. spp.

Jolia roeseli, the supposed nymph is really *Chirotenetes ignotus*, NEEDHAM, p. 28, t. c.

Polymitarcys albus, nymph, HOWARD, p. 60, Bull. N. York Mus. lxxxvi.

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Rhithrogena ferruginea, Spain, Navás, p. 123, Bol. Soc. Aragon. iv, n. sp.

ODONATA or PARANEUROPTERA.

[Cf. BRAUNER (172), CALVERT (670), EAST (488), EVANS (528), FOERSTER (584), GADEAU (631), GEISSLER (648), KIRBY (851, 852), MORTON (1073), NEEDHAM (1090), OSBURN (1127), TILLYARD (1494, 1495), WILLIAMSON (1635).]

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Proportions of the sexes in *Odonata*, TILLYARD, pp. 344–349, P. Linn. Soc. N. S. Wales xxx.

Odonata of the Crimea (in Russian), BRAUNER, Zapiski Novoross. Obshch. xxiv, pp. 73–102.

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- Aeshna dugesii*, pl. viii, figg. 11, 12, p. 184, *williamsoniana*, figg. 13, 14, 19, p. 185, Mexico, CALVERT, t. c. n. spp.
Cordulegaster annulatus, oviposition, RIS, p. 113, Ent. News Philad. xvi; *C. obliquus*, habits, nymph, NEEDHAM, pp. 3, 4, Ent. News Philad. xvi.
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Diplacodes friedericella, p. 75, *paraguayensis*, p. 76, Paraguay, FÜRSTER, Ins. Börse 1905, n. spp.
Diplax striolata, habits in captivity, JOHNSTON, p. 43, Irish Natural. 1905.
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Gomphine, the Centr.-American genera, CALVERT, pp. 146–148, t. c.
Gomphoides volSELLA, Mexico, p. 156, pl. vii, figg. 10, 13, 14, CALVERT, t. c. n. sp.
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Ischnura elegans var. n. *infuscans*, CAMPION, p. 299, Entomologist 1905; *I. heterosticta*, dimorphic ♀, TILLYARD, p. 302, P. Linn. Soc. N. S. Wales xxx; *I. elegans*, rearing and crossing spp. with dimorphic ♀, DONCASTER, p. 110, Entomologist 1905.
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Misthotus n. g. near *Orthetrum*, *marshalli*, p. 192, *ambiguus*, p. 194, n. spp., S. Africa, KIRBY, Ann. Nat. Hist. (7) xv.
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THYSANOPTERA.

[Cf. ASHMEAD (37), HINDS (748), REUTER (1260).]

- Euthrips nicotianæ*, Florida, HINDS, p. 198, P. Soc. Washington xviii, n. sp.
Heliothrips haemorrhoidalis, injurious habits, LEONARDI, Bull. Ent. agraria v, 4 pp.
Idolothrips tibialis, Manila, ASHMEAD, p. 20, Ent. News Philad. xvi, n. sp.
Leucothrips n. g. near *Heliothrips*, p. 107, *nigripennis* n. sp., Finland, in hothouses, p. 108, REUTER, Medd. Soc. Faun. Fenn. xxx.

(g.) *APTERA* or *THYSANURA* and
COLLEMBOLA.**THYSANURA.**

[Cf. BOUVIER (162), ESCHERICH (525), HEYMONS (745), NAVÁS (1085), VON OLFFERS (1120), SILVESTRI (1394-1397), TEMPÈRE (1472), VERHOEFF (1539).]

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A. wheeleri, Texas, p. 125, *anommatis*, Congo, p. 128, *desneuxi*, Java, p. 147, ESCHERICH, Zoologica xliii, n. spp.

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Lepidospora n. g. p. 131, *braueri* n. sp., Seychelles, p. 132, *gracilis*, Sumatra, n. sp., p. 148, ESCHERICH, Zoologica xliii.

- Lepisma globosa*, p. 50, *oudemansi*, p. 53, S. Africa, *crassipes*, Tunis, p. 54, *skorikowi*, Sevastopol, p. 59, ESCHERICH, t. c. n. spp.
Lepismina argentea, Spain, NAVÁS, p. 130, Bol. Soc. Aragon. iv; *L. persica*, Persia, p. 73, ESCHERICH, Zoologica xlivi : n. spp.
Machilidae, morphology of abdomen, SILVESTRI, pp. 794–797, Zool. Jahrb. Suppl. vi.
Machilis torquata, p. 109, *constricta*, p. 115, Spain, NAVÁS, Bol. Soc. Aragon. iv, n. spp.
Nicoletia grassii, Sicily = (*phytophila* G. & R. nec Gerv.), p. 134, ESCHERICH, Zoologica xlivi; *N. (subg. n. Anelpistina) wheeleri*, p. 111, *ruckeri*, p. 113, Texas, *meinerti*, p. 114, Venezuela, SILVESTRI, pl. xi, Redia ii : n. spp.
Procampodea n. g. p. 115, *brevicauda* n. sp., S. Italy, p. 117, pl. xii, SILVESTRI, t. c.
Silvestrella n. g. p. 65, *S. termitophila*, p. 66, *myrmecophila*, p. 67, n. spp., S. Africa, ESCHERICH, Zoologica xlivi.
Thermonbia longimana, Thebes, ESCHERICH, p. 104, t. c. n. sp.
Trinemophora schaefferi, Chile, SILVESTRI, p. 790, Zool. Jahrb. Suppl. vi, n. sp.

COLEMBOLA OR APONTOPTERA.

[Cf. AXELSON (49), BECKER (88), CARL & LEBEDINSKY (277), FRANKLIN (597), HOFFMANN (753), KRAUSBAUER (891), LEBEDINSKY (929).]

Structure and function of the mouth-parts in *Tomocerus*, HOFFMANN, Zeitschr. wiss. Zool. lxxxii, pp. 638–663, pl. xxxiv.

- Achorutes armatus* var. n. *pallens*, KRAUSBAUER, p. 89, Ber. Oberhess. Ges. xviii; *A.*, 6 varr. n. from Finland, AXELSON, p. 788, Zool. Anz. xxviii.
A. frigidus, Finland, AXELSON, p. 788, t. c.; *A. assimilis*, Germany, KRAUSBAUER, p. 88, Ber. Oberhess. Ges. xviii : n. spp.
Entomobrya marginata var. n. *pallida*, KRAUSBAUER, p. 75, t. c.
E. superba, Germany, KRAUSBAUER, p. 75, t. c.; *E. albicollis*, Massachusetts, FRANKLIN, p. 77, Ent. News Philad. xvi : n. spp.
Isotoma fimetaria var. n. *caldaria*, AXELSON, p. 790, Zool. Anz. xxviii.
I. borealis, *angularis*, Finland, AXELSON, p. 791, t. c.; *I. schafferi*, Germany, KRAUSBAUER, p. 70, Ber. Oberhess. Ges. xviii : n. spp.
Isotomini, new sections *Furcati* and *Afurcati*, KRAUSBAUER, pp. 33, 34, t. c.
Oncopodura n. g. subf. n. *Oncopodurina*, *hamata* n. sp., Crimea in caverns, CARL & LEBEDINSKY, p. 562, Zool. Anz. xxviii.
Neanura coronifera, p. 789, *reticulata*, p. 790, Finland, AXELSON, Zool. Anz. xxviii, n. spp.
Papirius minutus varr. n. pp. 59, 60, KRAUSBAUER, Ber. Oberhess. Ges. xviii.
P. violaceus, p. 61, *setosus*, p. 63, Germany, KRAUSBAUER, t. c. n. spp.
Pseudachorutes dubius, Germany, KRAUSBAUER, p. 94, t. c. n. sp.
Pseudachorutides n. g. *bogoyawlensky* n. sp., Persian Gulf, BECKER, p. 72, Zool. Anz. xxix.
Sira platani var. n. *argenteocincta*, p. 81, *elongata* var. n. *fasciata*, p. 82, KRAUSBAUER, Ber. Oberhess. Ges. xviii.
Sminthurides cruciatus, p. 792, *annulicornis*, p. 793, Finland, AXELSON, Zool. Anz. xxviii, n. spp.
Sminthurinus, 3 varr. n., AXELSON, p. 794, t. c.; *S. pallipes* = (*speciosus* Krausb.), p. 42, *S. aureus* varr. n., pp. 45, 46, KRAUSBAUER, Ber. Oberhess. Ges. xxxiv.
S. quinquefasciatus, p. 42, *pumilis*, p. 47, *signatus*, p. 52, *parvulus*, p. 53, *assimilis*, p. 54, Germany, KRAUSBAUER, t. c. n. spp.
Xenylla borneri, Finland, AXELSON, p. 789, Zool. Anz. xxviii, n. sp.

(H.) ORTHOPTERA.

Regeneration of appendages, BORDAGE, Bull. Sci. France Belgique, pp. 307–454.

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FORFICULIDÆ.

[Cf. BORELLI (144, 145), BURR (219–222), CADELL (287, 288), GADEAU (632), KRAUSS (892), PAOLI (1137), PLANET (1209), REHN (1237), SOPP (1426), TERRY (1475), VERHOEFF (1539).]

Notes on Kirby's Catalogue, CADELL, pp. 84, 85, P. ent. Soc. Washington vii.

Structure of the head and mouth, *Dermoptera*, VERHOEFF (1539).

Use of forceps and variability in male, SOPP, Rep. Lancashire ent. Soc. 1904, pp. 38–43.

Perce-oreille, origin of name, use of forceps, GADEAU DE KERVILLE, Bull. Soc. zool. France 1905, pp. 55–63.

Ancistrogaster kervillei, Venezuela, BURR, p. 490, Ann. Nat. Hist. (7) xvi ; *A. falcifera*, Peru, REHN, p. 510, P. U. S. Mus. xxix : n. spp.

Anechura athymia = (eo) Sem., BURR, p. 495, Ann. Nat. Hist. (7) xvi.

A. sokotra, Sokotra, BURR, p. 493, t. c. ; *A. torquata*, Tonkin, BURR, p. 85, Ent. Mag. 1905 : n. spp.

Anisolabis pluto, Liberia, REHN, p. 506, P. U. S. Mus. xxix, n. sp.

Chætospania capella, Madagascar, BURR, p. 84, Ent. Mag. 1905 ; *C. confusa*, Mentawai, BURR, p. 489, Ann. Nat. Hist. (7) xvi : n. spp.

Chelidura sinuata var. n. *opisthogona*, p. 50, cut, *dilatata* var. on Canigou, p. 51, BORELLI, Feuille Natural. xxxv.

Chelisoches flavigennis Fabr. = (*variegata* Kirby = *vittatus* Burr), *C. shelfordi*, *hercules* is the ♂, BURR, p. 496, Ann. Nat. Hist. (7) xvi ; *C. morio*, abdominal structure, development of antennæ, life-history, TERRY, pp. 164–171, pl. viii, Bull. exp. Stat. Hawaii i, pt. v.

C. stratioticus, Siam, REHN, p. 509, P. U. S. Mus. xxix, n. sp.

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F. obtusangula, Montenegro, KRAUSS, p. 5, SB. Bohmisch. Ges. 1904, No. 10 ; *F. canariensis*, Tenerife, p. 493, *redempta*, Sokotra, *vidua*, Guatemala, p. 494, BURR, Ann. Nat. Hist. (7) xvi ; *F. acer*, p. 30, *celer*, p. 21, India, BURR, J. P. Asiat. Soc. Bengal i ; *F. interrogans*, Darjiling, *davidi*, Mou-Pin, BURR, p. 85, Ent. Mag. 1905 ; *F. schwarzi*, Cuba, REHN, p. 513, P. U. S. Mus. xxix : n. spp.

Gonolabis verhoefti, S. Australia, BURR, p. 487, Ann. Nat. Hist. (7) xvi, n. sp.

- Labia laminata*, Java, BURR, p. 84, Ent. Mag. 1905; *L. nigroflavida*, Queensland, REHN, p. 507, P. U. S. Mus. xxix; *L. silvestrii*, Paraguay, BORELLI, p. 8, Boll. Mus. Torino xx, No. 516; *L. tenuipes*, Peru, BURR, p. 487, Ann. Nat. Hist. (7) xvi : n. spp.
Labidura mongolica, Pekin, REHN, p. 503, P. U. S. Mus. xxix, n. sp.
Labidurodes magnificus, Siam, REHN, p. 504, t. c. n. sp.
Mecomera kervillei, Java, BURR, p. 489, Ann. Nat. Hist. (7) xvi, n. sp.
Nesogaster dolichus Burr (as *Labia*) = *fruhstorferi* Verh., BURR, p. 495, t. c. *Opisthocosmia poultoni*, Batchian, p. 491, *formosa*, Cameroons, p. 492, BURR, t. c.; *O. esculapius*, India, BURR, p. 530, Bol. Soc. espan. v; *O. vivax*, India, BURR, p. 30, J. P. Asiat. Soc. Bengal i; *O. bogotensis*, Colombia, REHN, p. 511, P. U. S. Mus. xxix : n. spp.
Psalid burri, Paraguay, BORELLI, p. 2, Boll. Mus. Torino xx, No. 516, n. sp.
Pygidicrana peruviana, Peru, REHN, p. 510, P. U. S. Mus. xxix, n. sp.
Sparatta incerta, Paraguay, BORELLI, p. 11, Boll. Mus. Torino xx, No. 516, n. sp.
Sphingolabis semifulva Borrm., *furcifera* is the ♀, BURR, p. 495, Ann. Nat. Hist. (7) xvi.
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BLATTIDÆ and HEMIMERIDÆ.

[Cf. ADELUNG (8), BOLIVAR (128), CAUDELL (288, 293, 294), REHN (1239).]

Notes on Kirby's Catalogue, with list of omitted genera and species, CAUDELL, pp. 85–88, P. ent. Soc. Washington vii.

- Anaplecta abortiva*, Brownsville, CAUDELL, p. 105, Bull. Brooklyn Inst. i, n. sp.
Attaphila aptera, Colombia, *sexdentis*, Brazil, p. 137, *schuppi*, Porto Alegre, p. 138, BOLIVAR, Mt. Schweiz. ent. Ges. xi, n. spp.
Atticola n. g. *Corydiens* ?, p. 140, *mortoni* n. sp., San Leopoldo, in nests of *Camponotus*, p. 141, BOLIVAR, t. c.
Blaberus bolleyi, Costa Rica, REHN, p. 792, P. Ac. Philad. 1905, n. sp.
Blatta scioana, p. 421, B. (*Phyllodromia*) *desertorum*, p. 424, E. Africa, ADELUNG, Annaire Mus. St. Petersb. ix, n. spp.
Ceratinoptera bolivari, Galla land, ADELUNG, p. 431, t. c. n. sp.
Derocephalumma : characters, pp. 473–476, ADELUNG, t. c.
Deropeltis gracilis, p. 455, *negus*, p. 458, *erythropeza*, p. 460, Abyssinia, *dmitriewi*, Galla land, p. 463, ADELUNG, t. c. n. spp.
Hemimerus talpooides, habits, MACLAUD, p. 174, Bull. Soc. ent. France 1905.
Ischnoptera adusta, Porto Rico, CAUDELL, p. 237, Canad. Ent. 1905, n. sp.
Litaneutria minor and allies, CAUDELL, p. 463, P. U. S. Mus. xxviii.
Loboptera ras, Abyssinia, ADELUNG, p. 436, Annaire Mus. St. Petersb. ix, n. sp.
Mallotoblatta kraussi, Abyssinia, ADELUNG, p. 428, t. c. n. sp.
Nothoblatta n. g. p. 139, *N. wasmanni* n. sp., San Leopoldo, in nests of *Camponotus*, p. 140, BOLIVAR, Mt. Schweiz. ent. Ges. xi.
Oxyhaloa lukjanovi, Abyssinia, ADELUNG, p. 467, Annaire Mus. St. Petersb. ix, n. sp.
Phorticolea n. g. *Ectobiens*, p. 138, *testacea* n. sp., Rio Grande do Sul, p. 139, BOLIVAR, Mt. Schweiz. ent. Ges. xi.
Pseudoderopeltis conspersipennis, p. 448, *spectabilis*, p. 451, Abyssinia, ADELUNG, Annaire Mus. St. Petersb. ix, n. spp.
Stylopyga flavilatera ♂, ADELUNG, p. 439, t. c.
Temnopteryx brunneri, Abyssinia, ADELUNG, p. 433, t. c. n. sp.

MANTIDÆ.

[Cf. TEPPER (1473), WERNER (1615).]

Brunneria borealis, pl. iii, fig. 3, p. 82, CAUDELL, J. N. York Ent. Soc. xiii.
Centromantis n. g. type *Eremiaphila hedenborgi*, WERNER, p. 404, Anz. Ak. Wien 1904.

Eremiaphila tunetana, Tunis, *heluanensis*, *pyramidum*, Egypt, WERNER, p. 405, t. c. n. spp.

Fischeria quinquelobata, Centr. Australia, TEPPER, p. 238, Tr. R. Soc. S. Austral. xxix, n. sp.

Gongylus gongylodes, WILLEY, p. 198, 2 plates, Spolia Zeylan. ii.

Mantis religiosa in East France, VUILLEMIN, pp. 57, 58, Feuille Natural. xxxv.

Tenodera sinensis, failure of its introduction in New Jersey, SMITH, p. 247, Ent. News Philad. xvi.; *T. sinensis*, persists in N. J., WENZEL, p. 312, t. c.

Vates townsendi, pl. iii, figg. 1, 2, p. 83, CAUDELL, J. N. York Ent. Soc. xiii.

PHASMIDÆ.

[Cf. BAKER (63), CAUDELL (291, 292, 294), FROGGATT (614), KIRBY (853), LEA (927), REHN (1239), TEPPER (1473).]

Acrophylla tasmaniensis, Tasmania, LEA, p. 81, plate, P. Soc. Tasmania 1902; *A. nubilosa*, p. 241, *parva*, p. 242, Australia, TEPPER, Tr. R. Soc. S. Austral. xxix: n. spp.

Aplopus mayeri, Florida, CAUDELL, p. 83, J. N. York Ent. Soc. xiii, n. sp.

Bacillus peristhenellus, Australia, TEPPER, p. 244, Tr. R. Soc. S. Austral. xxix, n. sp.

Bacunculus blatchleyi, Indiana, CAUDELL, p. 212, J. N. York Ent. Soc. xiii, n. sp.

Bostra, table, REHN, p. 795, P. Ac. Philad. 1905.

B. jugalis, Nicaragua, REHN, p. 72, Invert. pacif. i, n. sp.

Cyphocrania cornuta, Australia, TEPPER, p. 240, Tr. R. Soc. S. Austral. xxix, n. sp.

Diapheromera persimilis, Brownsville, CAUDELL, p. 107, Bull. Brooklyn Inst. i, n. sp.

Extatosoma tiaratum, habits, FROGGATT, pp. 519, 520, cuts, Agric. Gaz. N. S. W. xvi.

Hoplolibethra n. g. near *Caulonia*, *tuberculata* n. sp., Brownsville, pl. vi, figg. 1, 2, CAUDELL, p. 108, Bull. Brooklyn Inst. i.

Libethra auritus, Costa Rica, REHN, p. 796, P. Ac. Philad. 1905, n. sp.

Lonchodes caurus, Australia, TEPPER, p. 239, Tr. R. Soc. S. Austral. xxix, n. sp.

Necroscia bella, Australia, TEPPER, p. 243, t. c. n. sp.

Olcypoides viridipes, Costa Rica, REHN, p. 798, P. Ac. Philad. 1905, n. sp.

Palophus alridgei, W. Africa, KIRBY, p. 279, Ann. Nat. Hist. (7) xv, n. sp.

Phibalosoma hypharpax, WILLEY, p. 199, pl., Spolia Zeylan. ii.

Podacanthus wilkinsoni, abundant and injurious in Australia, FROGGATT, p. 515, pl. with fig. of egg, Agric. Gaz. N. S. W. xvi.

GRYLLIDÆ.

[Cf. BAKER (63), BOLÍVAR (133), CSIKI (379), HANCOCK (720), MORSE (1072), REHN (1239), REHN & HEBARD (1242), VIEHMEYER (1548), VOSS (1555), WASMANN (1588).]

The thorax and organs of flight of *Gryllus domesticus*, Voss, Zeitschr. wiss. Zool. lxxviii.

Amphiacustes bahamensis, Bahamas, MORSE, p. 23, Psyche xii, n. sp.
Cyrtoxiphia granadensis, Nicaragua, REHN, p. 80, Invert. pacif. i, n. sp.
Ectotrypa brevis, Costa Rica, REHN, p. 836, P. Ac. Philad. 1905, n. sp.
Gryllomorpha maghzeni, Mogador, BOLÍVAR, p. 350, Bol. Soc. españ. v, n. sp.

Gryllus bryanti, Bahamas, MORSE, p. 22, Psyche xii, n. sp.
Liphoplus zebra, Florida, REHN, p. 49, pl. i, fig. 12, P. Ac. Philad. lvii, n. sp.

Mogistoplistus baibouri, Bahamas, MORSE, p. 21, Psyche xii, n. sp.
Myrmecophila acervorum, sexes distinguished, CSIKI, Allatt. Kozl. Magyar Tars. iv, pp. 97–100, pl. iv; *M. acervorum*, relations with ants, VIEHMEYER, p. 293, Zeitschr. Insbiol. i; WASMANN, t. c. pp. 333–336.

Nemobius allenii, Bahamas, MORSE, p. 21, Psyche xii, n. sp.
Œcanthus fasciatus, sex-relations, oviposition, HANCOCK, Amer. Natural. xxxix, pp. 1–11, cuts.

Œ. marcosensis, Nicaragua, rileyi, p. 81, rehnii, p. 82, California, BAKER, Invert. pacif. i, n. spp.

LOCUSTIDÆ.

[Cf. BAKER (63), BOLÍVAR (129, 131, 132), BRÈTHES (189), CAUDELL (290), DAVIS (390), DOHRN (443), FROGGATT (613), FUSCHINI (628), KRAUSZE (894), MORSE (1072), NAVÁS (1086), REHN & HEBARD (1242), SCHUSTER (1363), SNODGRASS (1425), SWEZNEY (1458), WALKER (1562).]

Wing-dimorphism, in *Xiphidium*, SWEZNEY, pp. 218–222, Rep. exp. Stat. Hawaii i.

Amblycorypha iselyi, Kansas, CAUDELL, p. 50, J. N. York Ent. Soc. xiii; *A. floridana*, Florida, REHN, p. 42, pl. i, fig. 5, P. Ac. Philad. lvii, n. spp.

Anabropsis marmorata, p. 827, *costaricensis*, p. 830, Costa Rica, REHN, P. Ac. Philad. 1905, n. spp.

Anaulacomera digitata, Costa Rica, REHN, p. 810, t. c. n. sp.

Anostosoma, in Australia, FROGGATT, pp. 480, 481, Agric. Gaz. N. S. W. xvii.

Anterastes raymondi, ♂ characters, COBELLI, p. 369, Verh. Ges. Wien 1905.

Anthracites geniculatus, Mindanao, *femoralis*, Celebes, DOHRN, p. 241, Stettin Ent. Zeit. lxvi, n. spp.

Ceuthophilus, characters of N. American, WALKER, pp. 114–119, pls. iv, v, Canad. Ent. 1905.

C. pallidipes, Canada, WALKER, p. 115, pl. iv, fig. 2, t. c. n. sp.

Cigarra: this Spanish term is applied to *Locustide* not to *Cicada*, BOLÍVAR, pp. 90–94, Bol. Soc. españ. v.

Cocconotus ravus, Costa Rica, REHN, p. 818, P. Ac. Philad. 1905, n. sp.

Conocephalus striatus, *subtilis*, Tonkin, KRAUSZE, p. 43, Ent. Zeitschr. Guben xviii; *C. caudellianus*, New Jersey, DAVIS, p. 289, Canad. Ent. 1905; *C. diversus*, Costa Rica, REHN, p. 825, P. Ac. Philad. 1905; *C. lyristes*, p. 45, pl. i, figg. 8, 9, *hoplomachus*, p. 46, figg. 10, 11, Florida, REHN, P. Ac. Philad. lvii : n. spp.

Dasysscelus normalis = (*Pleminia argentinu* Berg), natural history, BRÈTHES, pp. 67–73.

Ephippiger vitium, natural history, Germany, SCHUSTER, pp. 81–85, Zool. Garten xlvi.

Heterocois (sic) *bakeri*, Nicaragua, REHN, p. 83, Invert. pacif. i, n. sp.

- Hexacentrus fruhstorferi*, Tonkin, p. 237, *femoralis*, Sumatra, p. 238, DOHRN, Stettin Ent. Zeit. lxvi, n. spp.
Lichenochrus marmoratus, Costa Rica, REHN, p. 814, P. Ac. Philad. 1905, n. sp.
- *Lobaspis hageni*, New Guinea, p. 238, *minuta*, Sumba, *thoracica*, Obi, p. 239, DOHRN, Stettin Ent. Zeit. lxvi, n. spp.
 - Macrocriphus atomarius*, p. 243, *pictipes*, p. 245, Borneo, *nigrifrons*, Sumatra, p. 246, DOHRN, t. c.; *M. chyzeri*, New Guinea, BOLÍVAR, p. 390, Ann. Mus. Hungar. iii : n. spp.
 - Microcentrum rostratum*, Florida, REHN, p. 43, pl. i, figg. 6, 7, P. Ac. Philad. lvii, n. sp.
 - Orchelimum erythrocephalum*, New Jersey, DAVIS, p. 288, Canad. Ent. 1905, n. sp.
 - Orthoriphus* n. g. for *Agroecia spada* Br., DOHRN, p. 240, Stettin Ent. Zeit. lxvi.
 - Parateuthras* n. g. *Conocephalides*, p. 393, *truncatus* n. sp., New Guinea, p. 394, BOLÍVAR, Ann. Mus. Hungar. iii.
 - Peranubrus scabricollis*, habits, SNODGRASS, pp. 74-82, pls. i, ii, J. N. York Ent. Soc. xiii.
 - Phaneroptera quadripunctata*, attacking galls of *Phylloxera* on vine-leaves, FUSCHINI, pp. 120-126.
 - Platephippius* n. g. for *Platystolus ustulatus* Ramb., NAVÁS, p. 275, Bol. Soc. Aragon. iv.
 - Pycnogaster cucullata* Charp. = (*jugicola* Graells = *bolivari* Br.), NAVÁS, p. 276, t. c.
 - Racocleis maroccana*, Tangier, BOLÍVAR, p. 345, Bol. Soc. espan. v, n. sp.
 - Sathrophyllia rugosa*, WILLEY, p. 199, pl. Spolia Zeylan. ii.
 - Steirodon*, the type, REHN, p. 807, P. Ac. Philad. 1905.
 - Synephippius* n. g. for *Platystolus obvius* Nav., NAVÁS, p. 275, Bol. Soc. Aragon. iv.
 - Teuthras arachnoides*, p. 391, *rubrosignatus*, p. 392, *crassipes*, p. 393, New Guinea, BOLÍVAR, Ann. Mus. Hungar. iii, n. spp.
 - Teuthroides* n. g. *Conocephalides*, p. 394, *mimeticus* n. sp., New Guinea, p. 395, BOLÍVAR, t. c.
 - Turpilia linearis*, Costa Rica, REHN, p. 812, P. Ac. Philad. 1905, n. sp.
 - Xerophyllopteryx* n. n. for *Xeropteryx* Br., REHN, p. 180, Ent. News Philad. xvi.
 - Xestophrys horvathi*, New Guinea, BOLÍVAR, p. 388, Ann. Mus. Hungar. iii, n. sp.
 - Xiphidiopsis longicerata*, New Guinea, p. 390, *teuthroides*, p. 391, Singapore, BOLÍVAR, t. c. n. spp.
 - Xiphidium chavesi*, Azores, BOLÍVAR, p. 180, Bol. Soc. espan. v; *X. redtenbackeri*, New Guinea, BOLÍVAR, p. 389, Ann. Mus. Hungar. iii; *X. insulare*, Bahamas, MORSE, p. 20, Psyche xii; *X. varipenne*, Hawaii, SWEZNEY, p. 216, pl. xiv, Rep. exp. Stat. Hawaii, i : n. spp.

ACRIDIIDÆ.

[Cf. BOLÍVAR (127, 130), BRUNER (205, 206, 670), CAUDELL (287, 289, 294), KUTHY (908), MORSE (1072), NAVÁS (1084), REHN (1238, 1240, 1241), REHN & HEBARD (1242), RÖHLER (1288), SJÖSTEDT (1405).]

Migratory locusts at Velletri, GALLI (634).

Migratory locusts, Africa, SJÖSTEDT, Ent. Tidskr. xxvi, pp. 80-84.

Achurum minimipenne, Brownsville, pl. vi, figg. 3, 4, CAUDELL, p. 110, Bull. Brooklyn Inst. i, n. sp.

Acmophyllum xerophylloide, *conradti*, p. 211, *nigropunctatum*, p. 212, Africa, BOLÍVAR, Mem. Soc. Espan. i, n. spp.

- Acridium peregrinum*, colour variation, FISCHER, p. 369, J. Bombay Soc. xvi.
- Acrotylus inornatus*, Ilysk, KUTHY, p. 216, Ann. Mus. Hungar. iii, n. sp.
- Ageneotettix australis*, Arizona, BRUNER, p. 110, Biol. Centr.-Amer. Orthopt. ii, n. sp.
- Algete* n. g. *Atractomorphinae*, p. 213, *brunneri* n. sp., Pernambuco, p. 214, BOLÍVAR, Bol. Soc. espan. v.
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- Aptenopedes clara*, variation, REHN, p. 41, t. c.
- Arbuscula* n. g. *Desmopterinae*, p. 110, *cambodjiana* n. sp., Cambodia, p. 111, BOLÍVAR, Bol. Soc. espan. v.
- Arescentica karschi*, Biafra, BOLÍVAR, p. 238, Mem. Soc. Espan. i, n. sp.
- Arphia*, table of species, BRUNER, pp. 119–123, Biol. Centr.-Amer. Orthopt. ii.
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- Atractomorpha aurivillii* valid, NAVÁS, p. 273, Bol. Soc. Aragon. iv; *A. table* of species, with varr. n., BOLÍVAR, pp. 196–199, Bol. Soc. espan. v.
- A. lanceolata*, Padang, p. 202, *burri*, p. 203, *himalayica*, p. 204, N. India, *sinensis*, China, p. 205, *blanchardi*, Sind, p. 206, *augusta*, Moupin, p. 207, *ambigua*, Shang-hai, *australiana*, Rockhampton, p. 209, *dentifrons*, Ceram, p. 210, *philippina*, Dolores, *dohrni*, Borneo, p. 212, BOLÍVAR, t. c. n. spp.
- Aulocara brevipenne*, Mexico, BRUNER, p. 111, Biol. Centr.-Amer. Orthopt. ii, n. sp.
- Badistica ornata*, Ashanti, BOLÍVAR, p. 229, Mem. Soc. Espan. i, n. sp.
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- Cibotopteryx* n. g. near *Elaeochlora*, *variegata* n. sp., Costa Rica, REHN, p. 408, P. Ac. Philad. lvii.
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- Colpolopha bruneri*, Costa Rica, REHN, p. 406, t. c. n. sp.
- Coptacra mellifica*, Biafra, BOLÍVAR, p. 235, Mem. Soc. Espan. i, n. sp.
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- Crotogonus turanicus*, Ilysk, KUTHY, p. 217, Ann. Mus. Hungar. iii, n. sp.
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- Dichroplus morosus* ♂, REHN, p. 805, P. Ac. Philad. 1905.
- D. morosus*, Costa Rica, REHN, p. 442, t. c. n. sp.
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- Heliaustus benjamini*, Arizona, CAUDELL, p. 474, P. U. S. Mus. xxviii; *H. costaricensis*, Costa Rica, REHN, p. 402, P. Ac. Philad. lvii : n. spp.
- Hesperotettix curtipennis*, ♂, CAUDELL, p. 465, P. U. S. Mus. xxviii.
- Hippiscus australis*, Mexico, BRUNER, p. 157, Biol. Centr.-Amer. Orthopt. ii, n. sp.
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- Orthaeis maindroni*, India, BOLÍVAR, p. 278, Bol. Soc. espan. v, n. sp.
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- Piezotettix karschi*, BOLÍVAR, p. 213, Mem. Soc. Espan. i, n. sp.
- Platypterna latipes*, Africa, BOLÍVAR, p. 222, t. c. n. sp.
- Plectrotettix varipes*, Paraguay, BRUNER, p. 214, Ent. News Philad. xvi, n. sp.

- Podisma almasyi*, Tien-Shan, KUTHY, p. 218, Ann. Mus. Hungar. iii, n. sp.
- Pristocorypha latruncularia* ♂, BOLÍVAR, p. 232, Mem. Soc. Espan. i.
- Pterotiltus apicalis*, p. 226, *cæruleocephalus*, p. 227, W. Africa, BOLÍVAR, t. c. n. spp.
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- Rhachicreagra* n. g. near *Polysarcus, nothra* n. sp., Costa Rica, REHN, p. 444, P. Ac. Philad. lvii.
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- Schistocerca malachitica*, Costa Rica, REHN, p. 439, t. c. n. sp.
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- Scalocephalus* n. g. *Proscopidae, mirabilis* n. sp., Costa Rica, BRUNER, p. 315, Ent. News Philad. xvi.
- Scyllina rubripes*, Himalaya, NAVÁS, p. 53, Bol. Soc. Aragon. iv, n. sp.
- Serpusia blanchardi*, Liberia, BOLÍVAR, p. 238, Mem. Soc. Espan. i, n. sp.
- Sphenacris granulatus*, New Caledonia, BOLÍVAR, p. 279, Bol. Soc. espan. v, n. sp.
- Stenoxyphus variegatus* Blanch., BOLÍVAR, p. 105, t. c.
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- Syletria* n. g. *Xipholarum, angulata* n. sp., Costa Rica, REHN, p. 433, P. Ac. Philad. lvii.
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- Tropinotus regularis*, Paraguay, BRUNER, p. 215, Ent. News Philad. xvi, n. sp.
- Tryxalis nasuta*, habits and sense organs, RÖHLER, Zool. Jahrb. Anat. xxii, pp. 254-273.
- Uhagonia* n. g. *Atractomorphinae*, p. 214, *sphenariooides* n. sp., Madagascar, p. 215, BOLÍVAR, Bol. Soc. espan. v.
- Verdulia* n. g. for *Pyrgomorpha cycloideum* de Haan, p. 281, *dohrni*, p. 283, *olivacea*, p. 284, n. spp., Sumatra, BOLÍVAR, t. c.
- Zygoclistron* n. g. near *Paraleuas, trachystictum* n. sp., Paraguay, REHN, p. 39, Ent. News Philad. xvi.

XIV. ECHINODERMA.

BY

M. GRANT.

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INTRODUCTION.

When official decree stopped the assistance which for thirteen years it has been my pride and pleasure to offer to my colleagues, I was fortunate in persuading Miss Grant to take over the manuscript already prepared for the present issue and to complete the work with such supervision as I could give. She in turn has persuaded me to contribute this introduction and to insert within [], as usual, any remarks that might appear serviceable in the body of the Record. Consequently this, the last issue before the *Zoological Record* is amalgamated with the *International Catalogue*, preserves the style of its thirteen predecessors.

I. TITLES. The total 381 exceeds by 11 the number contained in the Record for 1900, when a special effort was made. Of these, however, 36 have not been seen. This is due, not to lack of effort, but mainly to the fact that I handed over to the Recorder a list of over 50 titles, many of which I had been trying to see for several years. A few of these have now been seen; others have been entirely excluded; 14, about which something definite is known, are placed in the ordinary list; while the remaining 22 form an appendix. Thus, it is hoped, these unseen works will not be entirely lost sight of, while at least those published after 1900 may receive attention in the *International Catalogue*.

The numbered titles belong to the following years: uncertain, 2; 1890, 1; 1893, 1; 1894, 3; 1895, 1; 1896, 1; 1897, 2; 1898, 5; 1899, 4; 1900, 3; 1901, 10; 1902, 10; 1903, 18; 1904, 35; 1905, 284; 1906, 1. The number 284 for the titular year has previously only been exceeded by the 288 of 1903, for which year we now know of 335 works. It is therefore probable that over 50 works remain to be recorded for 1905.

II. BIOLOGY. Although no work is conspicuous for either extent or fundamental character, several minor problems receive solutions while others are brought into prominence.

Anatomy.—In WOODLAND's account of spicule-formation in *Echinus* (344) the point of chief interest to us is that the spicule does not begin as a tetrahedron but as an intracellular granule which becomes triradiate. The axial organ and ovoid gland of echinoderms have long afforded matter for controversy. Not unnaturally, since PIETSOHMANN (256) discussing the varied histology and functions of the axial organ in Asteroids, and its connection with the oral blood-lacunae and with their radial extensions, proves that here as in crinoids different organs are confused. For *Isocrinus* these have been disentangled by REICHENSPERGER (267), who has been able to prove by excellent material of *I. decorus* that an adoral cell-complex, distinct from the glandular portion of the axial organ, but intimately connected with the labial blood-plexus, manufactures lymph-cells, which wander radially outward to the genital rachides of the arms and pinnules, becoming gonads on the way. His paper contains other interesting additions to our knowledge. Holothurians have no axial organ, but one seems to recognise something similar in RUSSO & POLARA's (283) statement that the formation of gonads in *Phyllophorus* and *Strongylocentrotus* is accompanied by a development of supporting and glandular cells, which latter nourish the gonads. POLARA (258) further shows that in *Phyllophorus* the bilateral symmetry of the genital caeca is not accompanied by corresponding symmetry of the genital lacuna and aboral sinus as is the case in *Synapta*.

By consideration of previous observations and by observation of un-stalked Crinoids preserved in alcohol, MINCKERT (214) confirms the views already expressed that the hypozygal and epizygial are complete brachial elements (Bather 1892, Bosshard 1900), and that the syzygy assists autotomy and provides a base for regeneration (Walther 1886, Bather 1896, 1900); he divides regeneration of brachia into simply reproductive, i.e. reproducing the branch as it existed before amputation, and augmentative, i.e. increasing the number of branches by the introduction of axillaries; to the latter he ascribes the origin, both phylogenetic and ontogenetic, of all bifurcations beyond the first; thus, species with more than 10 final series (to which he restricts the term "arms") owe the increased number not to normal growth, but to amputation, presumably autotomous, and augmentative regeneration. It remains for future workers to prove or disprove this ingenious theory by cultivating some many-branched species from early stages onwards.

Minor anatomical notes are scattered through the larger faunistic and systematic memoirs to be mentioned later. Among the smaller papers BELL (25) notes the restriction of podial pores to the proximal arm-region, with probable absence of podia, in *Ophiozona*, *Ophiura*, and *Ophiolipus*, and suggests search for a respiratory compound. KIERNIK (154, 155) shows that in the echinoids examined by him the glandular epithelium of the pedicellariae is columnar in a single layer, that the poison emerges by a single opening, that there are both striped and unstriped muscle fibres, quite distinct, the former probably effecting the rapid movements. The structure of various Palaeozoic Ophiurids leads BATHER (21) to suggest that the vertebrae of this class may be composed of two successive pairs of so-called ambulacrals.

Physiology, Bionomics, Auxology.—Students of experimental mor-

phology, in which echinoderms are so often the corpora vilia, will find a useful summary and guide in PRZIBRAM (262). Papers on normal development are few. HENDERSON (134) describes the early stages of an asterid, in general like the corresponding stages of *Asterina gibbosa*, but with more yolk. In a paper by VALETTE (324) dealing with new Chalk echinoids, the most valuable part is a study of young *Micraster coranguinum*; these facts of ontogenesis should now be compared with the phylogenetic results of ROWE. Among the important papers on the experimental side are those by GARBOWSKI (106, 107), the remarks on pigment in the latter being of general interest. It is also interesting to learn that GODLEWSKI (115) has reared plutei of Echinoid \times Crinoid origin. To the advances in the study of artificial parthenogenesis we cannot here refer, but may note abundant confirmation of the view previously expressed in these pages, that the most exact determination of the species or even variety under examination is a necessity for the purest of physiologists. Interesting physiological and bionomic notes will be found duly indexed, but attention may be directed to the discussion by LUKAS (201) of the stage of consciousness at which Echinoderms have arrived; though based mainly on the observations of others, it presents the matter in a novel and interesting light. The economically important subject of trepang fishery is considered in a pamphlet written for the government of the Dutch East Indies by DR KONINGSBERGER (166) of Buitenzorg, Java.

III. DISTRIBUTION. DOEDERLEIN (79, 80) contributes to Roemer & Schaudinn's 'Fauna Arctica' a discussion of the distribution of 27 species of Echinoids and 6 of Crinoids, which makes it noteworthy that the only species obtained by those gentlemen in the Arctic were *Stronglocentrotus droebachiensis*, *Antedon eschrichti*, and *A. prolixa*. KEMP (152) has drawn up a useful list of shallow and deep water echinoderms from W. Ireland, marred only by misuse of brackets. KOEHLER & VANNEY (164) discuss the deep sea Holothurian fauna of the Indian Ocean as dredged by H.M.S. Investigator, and consider that in general the deep-sea fauna is more broken up and less cosmopolitan than was once supposed. The distribution of various Asterids and Ophiurids collected by the Swedish Magellan Expedition is discussed by LUDWIG (199) who gives many interesting anatomical details. Such are also contained in the description of Holothurians from the Horn and from New Zealand by R. PERRIER (249), who considers that bipolarity is no general principle but a peculiar distribution of a few species, demanding independent explanation in each case. The increased collections of FOURTAU enable him (98) to add much valuable information concerning the Eocene and Upper Cretaceous Echinoids of Egypt.

IV. SYSTEMATIC. Species unfortunately have been founded on larvae before now, but GARBOWSKI (107) is the first to base a systematic division on a minute difference in the ovum alone. On the other hand, the real aid that biometry can render taxonomy is admirably illustrated by EDWARDS (88) from two species of *Holothuria*.

GROBBEN (124), following Metschnikoff, places the *Echinodermata* and *Enteropneusta* in a phylum *Ambulacraria* characterized by a prostoma functioning as anus, a secondary ventral mouth-opening, and a hydrocoel.

Among Holothurians, new species of *Myriotrochinae*, a subfamily hitherto known only from Arctic or Sub-Arctic Europe, are described from Korea by ÖSTERGREN (236), whose description (325) of new species of Scandinavian and Arctic Synaptids contains important notes on taxonomy. Keferstein's little known *Rhabdomolgus*, rediscovered off Helgoland, is proved by LUDWIG (196) to be a low form of *Synaptidae*. A new *Psolus* from California is described by FISHER (93). KOEHLER & VANNEY (164) introduce 59 new species and the following new genera of deep-sea Holothurians: *Dendrothuria*, *Pseudothuria*, *Allopatides*, *Perizoma*,

Bathyzona, *Amphideima*, *Benthophyces*, *Euri* [? *Eurino-*, or *Eury-*] *plastes*, *Filithuria*, *Gephyrothuria*; perhaps they never recognised the scholarly aptness of the names due to Théel.

New Echinoids from Arctic and Antarctic regions are briefly described by MORTENSEN (220). DOEDERLEIN (78) bases the following new genera on Echinoids obtained by the 'Valdivia': *Pygmaeocidaris*, *Lamprechinus*, *Orechinus*, *Notechinus*, *Mortensenia*; these are distinguished by minute, though not necessarily trivial, characters; the many new species are not figured. Tertiary Echinoids from Italy and Sardinia, Lower Cretaceous Echinoids from Capri, and interesting new species of *Diademopsis* and *Mesodiadema* from the Middle Lias of Italy, are described by AIRAGHI. With the cooperation of LAMBERT, SAVIN (286) has revised the fossil Echinoids of Isère, describing some new species; and in an appendix LAMBERT finds the new genus *Eosalenia*, which apparently is not a Salenid. The paper appears in three forms with two titles and three independent paginations; the fate of my (21) enables me to sympathise with Col. SAVIN in this misfortune. DONCIEUX (81) in collaboration with MIQUEL (215) & LAMBERT (171) has published a useful catalogue of the Nummulitic (Lower Lutetian) fossils of l'Aude and l'Hérault; the Echinoids are specially described by LAMBERT, in whose chapter so many novelties are concealed that one is sincerely grateful for the light shed on them by his own review, but would it not be simpler to use the expressions n. fam., n. g., etc. in the paper itself? His new genera appear to be *Stenaster* (afterwards *Parmulechinus*) and *Pseudobrissus*, neither from the rocks under discussion. The W. African Eocene fauna is increased by an interesting *Echinolampas* described by LAMBERT in CHAUTARD (47). Discussing the Eocene Spatangids of Egypt, FOURTAU (97) proposes the new genera *Heterospatangus* and *Plagiopneustes* and the new subgenera of *Euspatangus*—*Perispatangus*; he places the last two in a new group—*Megapneustidae*, but *Heterospatangus* and *Euspatangus* in the *Euspatangiidae*; the genotype of *Hypsospatangus* having been proved a *Trachyspatangus*, FOURTAU thinks to resuscitate the genus by selecting a new genotype, and gives its name to yet another of this sort of family. All these divisions show the danger of relying on the fascioles, and no wonder Mr FOURTAU is sometimes "assez embarrassé." *Fibulina* is a new genus described with other new Eocene Echinoids from Madagascar by TORNUQUIST (316). P. DE LORIOL (195) describes a new Cretaceous *Astropecten* from Patagonia and many new Echinoids from the Tertiary of Spain and Africa, the Lower Cretaceous and Upper Jurassic of Portugal and Mt. Salève. He reestablishes *Echinites excavatus* Leske.

Continuing his report on the *Echinodermata* found off the coast of S. Africa, BELL (25, 26, 27) describes Asteroids, Ophiroids, and Crinoids, and notes resemblance to both N. Atlantic and Indian Ocean faunas. Inter alia, he describes a new *Palmpipes* with 9 rays instead of the usual 5.

The most important work of the year is LUDWIG's (197) account of the *Astroidea* dredged by the Albatross in 1891 and 1899–1900, which establishes the genera *Parastrophecten*, *Albatrossia* (nom. preocc.), *Pauliella*, *Sarkaster*, and *Alexandaster*. Although general morphological and taxonomic conclusions are reserved for the author's memoir on the starfish of the German Deep-Sea Expedition, still the present beautiful volume is full of new observations on the skeletal and internal anatomy. FISHER (92) describes, without figuring, 24 new species of starfish from Californian and Alaskan deep waters, including *Cryptopeltaster* n. g. and *Eremicaster* and *Myxoderma* n. s.-gg. The monograph of British Cretaceous *Astroidea* is being continued by SPENCER (305) who describes some new species; the previous descriptions by SLADEN are completed by SEARLE'S excellent drawings. The littoral Ophiurids collected by the Siboga are described by KOEHLER (160) who establishes 60 new species and the

genera *Ophioptyxis* and *Astrochalcis*. BATHER (21) describes a new Devonian Ophiurid *Sympterura*.

There is much to be said for MINCKERT'S (213) establishment of a new genus *Decametrocrinus* for the species of *Promachocrinus* with simple arms, and something to be said for his new family *Decametrocrinidae*; but one is curious to know what he will find to say in favour of his Orders *Eleutherocrinoidae* and *Stylocrinoidae*, which resuscitate an idea that one had thought dead and buried. But even *Palaeocrinoidae* and *Neocrinoidae* are still in the text-books. If the long obscure genus *Cleioocrinus* still remains a puzzle, this is not the fault of SPRINGER's masterly description (306); it is noteworthy that his appeal to Cisatlantic phylogenists was independently answered in almost the same sense by two of them. Mignon TALBOT (312) publishes interesting and well-illustrated notes on several Lower Devonian crinoids of New York, but still fails to straighten out *Melocrinus* and *Mariacrinus*. Equal confusion attaches to *Cyathocrinus ornatussumus*, a figure of which adorns the cover of the Geological Report of the Fourth District, N.Y. (1843). The original material contained two distinct species of dicyclic inadunate crinoids with pinnulate arms, which in species A are heterotomous, but in species B bifurcate only once. J. M. CLARKE in a memoir (4) published two years ago, but not yet seen in this country, appears to have regarded a specimen of B as the holotype of *C. ornatussumus*. WHITFIELD (339) however has little difficulty in proving that the holotype was a specimen of A, which he agrees with JAEKEL to place in *Cosmocrinus*. For B, WHITFIELD establishes the new genus *Maragnicrinus*, which seems intermediate between the Silurian *Gothocrinus* and the Carboniferous *Seytalocrinus*, to which latter CLARKE (4 & 57) referred the genotype. Continuing his researches on the fossil Echinoderms of Stramberg, REMES (269) describes a curious new genus, *Pseudosaccocoma*. BENECKE'S fine monograph on the fossils of the Iron-ore formation of Lothringen and Luxemburg (29) describes an *Isocrinus* known as *Pentacrinus personatus*.

A Professional Paper on Lead, Zinc, and Fluorspar deposits is the hiding-place chosen by ULRICH (321) for valuable notes and excellent figures of Carboniferous Echinoderms including some new Blastoids. A new writer G. H. HUDSON (144) has published some admirable descriptions of interesting Ordovician crinoids and a cystid. Among problematica one mentions *pour mémoire* the *Astrechinus* of JAEKEL (145) though he has not yet published the description.

The following table gives the numbers of the new names proposed in the works indexed.

	New genera	Altered generic names	New sub-genera	New species	New varieties
Holothurioidae	10	0	0	68	8
Echinoidea	12	1	1	81	4
Asteroidea	6	0	2	86	2
Ophiuroidea	3	0	0	64	1
Crinoidea	3	0	0	15	0
Cystidea	0	0	0	1	0
Blastoidea	0	0	0	5	1
Incertae sedis	1 n.n.	0	0	0	0
Total	34 + 1 n.n.	1	3	320	16

Further remarks by me are placed in [].

F. A. BATHER.

December, 1906.

CORRIGENDA in previous Records.

Record for 1900, vol. xxxvii:—

- p. 103. *Phymosoma abbatei*. For ‘Santonian not Turonian’ read
‘Santonian as well as Turonian.’

Record for 1902, vol. xxxix:—

- p. 29. No. 247. For “pp. 1-23” read “pp. 265-287.”

Record for 1904, vol. xli:—

- p. 48. *Cucumaria frondosa*, entry under CLARK should read “that recorded from Florida reef probably not this sp., that from Alaska and N. Pacific probably *C. japonica*.”
- p. 93. *Agelacrinus chapmani*; AMI (7). Dr Ami desires to explain that, on p. 61^g of his paper, “*Agelacrinites Chapmani, Billings*” is a clerical error for “*Agelacrinites Billingsi, Chapman*.”

It is hoped that corrections will, as heretofore, be furnished by authors, so that they may be inserted in future volumes.

I. TITLES*.

ABICH, H. (1) Zool. Rec. 1902. Abstract by N. J. KARAKASCH, Annuaire geol. min. Russie, vii, p. 42.

1. AEBERHARDT, B. Note sur la faune de l’Oxfordien inférieur du Jura bernois. Eclog. geol. Helvet. viii, pp. 439-444. (Jan.) [III, B, iii, c, 2.]
2. AGASSIZ, A. On the progress of the Albatross Expedition to the Eastern Pacific. Amer. J. Sci. (4), xix, pp. 143-148. (Feb.) [III, A, iv.]
3. —. Albatross Expedition to the Eastern Pacific. Science (n. s.), xxi, pp. 178-183. (3 Feb.) [III, A, iv.]
Same as the first letter in AGASSIZ (4).

4. —. Three letters from Alexander Agassiz to the Hon. George M. Bowers, United States Fish Commissioner, on the Cruise, in the Eastern Pacific, of the U.S. Fish Commission steamer “Albatross,” Lieut.-Commander L. M. Garrett, U.S.N., commanding. Bull. Mus. Harvard, xlvi, pp. 65-84. (April.) [III, A, iv.]
- AIRAGHI, C. (2 & 3) Zool. Rec. 1903. Abstracts : Boll. Com. geol. Ital. xxxv, p. 268 (1904).

5. —. Echinodermi miocenici dei dintorni di S. Maria Tiberina (Umbria). Atti Acc. Torino, xl, pp. 43-54, i pl. (Jan.) [III, B, ii, d, iv, c.]
Review : by J. LAMBERT, Rev. paleozool. ix, p. 97 (April, 1905). Abstract by P. E. V[INASSA DE REGNY], Riv. ital. Pal. xi, p. 37 (June, 1905).

* An asterisk prefixed to a title indicates that the Recorder has not seen the Paper or Work referred to.

The Symbols in [] refer to the divisions of the Subject-Index, II, III, IV. Those referring to the Systematic portion [IV, A-K] are inserted only when some question of definite importance to the systematist is dealt with in the work. The names of the genera mentioned in any work can generally be gathered from the lists given under Distribution [III, A or B], and the species can then be traced by turning to Section IV. Only where this was not possible have names been inserted after the title.

6. [AIRAGHI, C.] Appunti di Echinologia fossile. Atti Mus. Milano, xliv, pp. 1-10, pl. i. [III, b, ii, d, f; iii, d, iv, c.] Abstracts : by J. LAMBERT, Rev. paleozool. ix, p. 161 (July, 1905); by VINASSA DE REGNY, Riv. ital. Pal. xi, p. 93 (Aug. 1905).
7. —. Echinodermi infracretacei dell' isola di Capri. Riv. ital. Pal. xi, pp. 82-90, pl. i. (15 May [i.e. end of June]) [III, b, iii, b, 2. iv, c.]
8. —. Echinidi miocenici della Sardegna raccolti dal Dott. Capeder. Atti Mus. Milano, xlvi, pp. 209-217, 2 text-figg. [III, b, ii, d.]
9. ALBERT [HONORÉ CHARLES] (Prince de Monaco). Sur la campagne de la Princesse Alice. C.R. Ac. Sci. exl, pp. 1373-1376. (22 May.) Reprinted as Bull. Mus. Monaco, No. 39, 5 pp. (5 June.) [III, A, ii.]
10. AMEGHINO, F. L'age des formations sédimentaires de Patagonie. An. Soc. Argent. li, pp. 65-91 ; liv, pp. 161-180. (April, 1901 ; Oct. 1902.) [III, b, ii, a.] Parts of a series of papers under this title beginning in vol. 1, p. 109 (Sept. 1900).
11. AMI, H. M. Preliminary lists of fossil organic remains from the Potsdam, Beekmantown (Calciferous), Chazy, Black River, Trenton, Utica, and Pleistocene formations comprised within the Perth Sheet (No. 119) in Eastern Ontario. Being Appendix to a Report on the Geology by R. W. ELLS. Ann. Rep. geol. Surv. Canada, xiv, pp. 80j-89j. (Published separately 1904, volume 1905.) [III, b, iv, h.]
12. AMMON, L. v. Zur Geologie von Togo und vom Nigerlande. Mt. geogr. Ges. München, i, pp. 393-474, pl. xix, text-figg. [IV, b, ii, f.] ANTHULA, D. J. (18) Zool. Rec. 1899. Abstract by N. J. KARAKASCH, Annuaire geol. min. Russie, vii, p. 42 (1905).
- ARIOLA, V. (13) Zool. Rec. 1904. Abstract by P. MAYER, Zool. Jahresber. 1904, p. 15 (Aug. 1905).
- 12A. —. Le ipotesi nella partenogenesi sperimentale e la fecondazione normale. Atti Soc. Ligustica, xiv, pp. 149-159. (1903.) [II, F, viii.]
- 12B. —. La merogonia e l' ufficio del nucleo nella fecondazione. Atti Soc. Ligustica, xv, pp. 196-203. (Dec. 1904, recd. Aug. 1905.) [II, F, viii.]
- 12c. BAGLIONI, S. Ueber das Sauerstoff bedürfnis des Zentralnervensystems bei Seetieren. Zeitschr. allg. Physiol. v, pp. 415-434. [II, c, vi.]
13. BAKALOW, P. Vorläufige Mitteilung ueber die Fauna der Trias und des Jura von Kotel (Bulgarien). Centrbl. Mineral. 1905, pp. 481-483. (Sept.) [III, b, iii, d, e.]
14. BALL, J. Kharga Oasis: its topography and geology. Rep. geol. Surv. Egypt, 1899, Part II, 116 pp., xix pls. (April, 1901.) [III, b, ii, f; iii, b, 1.]
15. —. On the topographical and geological results of a reconnaissance survey of Jebel Garra and the oasis of Kurkur. Surv. Dept. Egypt, 8vo, 40 pp., vii pls. Cairo. (1902.) [III, b, ii, f; iii, b, 1.]
16. BASSANI, F. La ittiofauna delle argille marnose plioceniche di Taranto di Nardò (Terra d' Otranto). Atti Acc. Napoli (2), xii, No. 3, 59 pp., iii pls. [III, b, ii, b.] Abstract by Author, Riv. ital. Pal. xii, p. 1 (Feb. 1906).
- BASSLER, R. S. See UNITED STATES NATIONAL MUSEUM (322).

17. BATAILLON, E. La parthénogénèse expérimentale d'après les derniers travaux de J. Loeb. Arch. zool. exp. Notes (4), iii, pp. ccxxxiii-ccxxxv. (Sept.) [II, F, viii.] Review of LOEB, J. (185, 186, 187).
18. BATE, DOROTHY M. A. On the ossiferous cave-deposits of Cyprus. Geol. Mag. (n. s.), dec. v, vol. i, pp. 324-325. (July, 1904.) [III, B, ii, d.]
19. BATHER, F. A. The Echinoid name *Discoidea subucula*. Ann. Nat. Hist. (7), xv, pp. 145-148. (Jan.) [II, E, iii. IV, c.] Review: by J. LAMBERT, Rev. paleozool. ix, pp. 95-96 (April, 1905). Abstract: by Author, Geol. Centrbl. vi, p. 311 (15 Mar. 1905).
20. —. [Remarks on *Clypeaster altus* var. *portentosus* from Cyprus, in discussion on paper by C. V. BELLAMY.] P. Geol. Soc. London, 1904-05, pp. 30-31. (Jan.) [III, B, ii, d.]
21. —. *Sympterura minveri*, n. g. et sp.: a Devonian Ophiurid from Cornwall. Geol. Mag. (n. s.), dec. v, vol. ii, pp. 161-169, pl. vi. (April.) [II, B, i, e, 5. III, B, iv, f. IV, E.] Republished with *unauthorised* title "A new Ophiurid from Cornwall (*Sympterura Minveri*, n. g. et sp.)" in Tr. geol. Soc. Cornwall, xiii, pp. 71-85, pl. ii: June. Abstracts: in J. R. Micr. Soc. 1905, p. 319 (June); by Author, Geol. Centrbl. vi, p. 669 (1 July, 1905); by KAYSER, N. Jahrb. Min. 1906, i, p. -301- (21 April, 1906); in LUDWIG (200). —. See also BELLAMY (28), NEWTON (227), SPRINGER (306), STOBBS (308), U. S. NAT. MUS. (322).
22. BEADNELL, H. J. L. The Cretaceous region of Abu Roash near the Pyramids of Giza. Rep. geol. Surv. Egypt, 1900, Pt. II, 48 pp., xiii pls., folding map. (1902.) [III, B, iii, b, 1.]
23. —. The relations of the Eocene and Cretaceous systems in the Esna-Aswan reach of the Nile Valley. Quart. J. Geol. Soc. lxi, pp. 667-678, text-figg. (30 Nov.) [III, B, iii, b, 1.]
24. —. The topography and geology of the Fayum Province of Egypt. Surv. Dept. Egypt, 4to, 102 pp., xxiv pls. Cairo. [III, B, ii, f.]
25. BELL, F. J. The Echinoderma found off the coast of South Africa. Part III. Ophiuroidea. "Marine investigations in S. Africa," vol. iii, pp. 255-260, pl. i. Cape Town. (8 May.) [II, B, i, e, 6. III, A, iii. IV, E.] Abstract: J. R. Micr. Soc. 1905, p. 443 (Aug.).
26. —. The Echinoderma found off the coast of South Africa. Part II. Asteroidea. "Marine investigations in S. Africa," vol. iii, pp. 241-253. Cape Town. (9 May.) [II, E, i, a. III, A, iii. IV, D.] Abstract: J. R. Micr. Soc. 1905, p. 443 (Aug.).
27. —. The Echinoderma found off the coast of South Africa. Part IV. Crinoidea. "Marine investigations in S. Africa," vol. iv, pp. 139-142, pls. ii-iv. (28 Aug.) [III, A, iii. IV, F.]
28. BELLAMY, C. V. & JUKES-BROWNE, A. J. The geology of Cyprus. 8vo, 72 pp. Printed at Plymouth: "Published by Authority" [? whose]. (July.) [III, B, ii, d.] *Ech.* determined by F. A. BATHER.
- . See also BATHER (20).

29. BENECKE, E. W. Die Versteinerungen der Eisenerzformation von Deutsch-Lothringen und Luxemburg. Abh. geol. Karte Elsass (n. s.), vi, 598 pp., lix pls., 4 text-figg. (May.) [III, b, iii, c, 3, iv, f.]
- BERG, L. (24) Zool. Rec. 1904. Abstract by N. J. KARAKASCH, Annuaire geol. min. Russie, vii, p. 49 (1905).
30. BERGMANN, W. Echinoderma für 1893. Arch. Naturg. 1899, Bd. ii, pp. 461-494. (Nov.) [II, E, iii.]
31. *BIGNEY, A. J. Experiments on developing eggs. P. Indiana Ac. 1901, pp. 95-96. (1902.) [II, F, viii.]
- BLANCKENHORN, M. See FOURTEAU, R.
32. BLASCHKE, F. Die Gastropodenfauna der Pachycardientuffe der Seiser Alpe in Südtirol nebst einem Nachtrag zur Gastropodenfauna der roten Raibler Schichten vom Schlernplateau. Beitr. Pal. Oesterr.-Ung. xvii, pp. 161-221, pls. xix-xx. [III, b, iii, e.]
33. BOCHENEK, A. O systemie nerwowym mięczaków, oślonic i szkarłupni. (Recherches sur le système nerveux des invertébrés —*Anodontia, Distalpia, Synapta*.) Bull. Ac. Cracovie, 1905, pp. 205-220, pl. v, 2 text-figg. (Feb.) [II, B, i, b, 9.] Abstract in LUDWIG (200).
- BOEHM, J. See VALETTE, A.
34. BOHN, G. Les mystères de la formation de l'oeuf. Rev. Idées, ii, pp. 307-310. (15 April.) [II, F, viii.] —. See also VIGUIER (328).
35. BOISTEL, A. Les fossiles néogènes du Maroc rapportés par M. Paul Lemoine. Bull. Soc. geol. France (4), v, pp. 201-208. (July.) [III, b, ii, c.] *Rotuloidea* discussed by J. LAMBERT. Abstract : by J. LAMBERT, Rev. paleozool. x, p. 64 (Jan. 1906).
36. BOLAÜ, H. Seestern und Einsiedlerkrebs. Zool. Garten, xlvi, p. 53. (Feb.) [II, d, iv, d.]
- 36A. BORCHGREVINK, C. Das Festland am Suedpol. Die Expedition zum Südpolarland in den Jahren 1898-1900. 8vo, vi+610 pp., v pls., 321 text-figg., 6 maps. Breslau : Schottlaender. M. 13.50. [III, A, i ; vi.]
37. BOUVIER, E. L. & SEURAT, G. *Eumodon convictor*, crabe commensal d'un Oursin. C.R. Ac. Sci. cxl, pp. 629-631. (Mar.) [II, D, viii, c.] Abstracts : Nature, lxxi, p. 479 (16 March, 1905); J. R. Micr. Soc. 1905, p. 311 (June).
38. BOVERI, T. Zellen-Studien. v. Ueber die Abhängigkeit der Kerngrösse und Zellenzahl der Seeigel-Larven von der Chromosomenzahl der Ausgangszellen. Jena Zeitschr. xxxix, pp. 445-524, pls. xix, xx, 7 text-figg. (18 Apr.) [II, F, viii.] Abstracts : J. R. Micr. Soc. 1905, p. 574 (Oct. 1905); Amer. Natural. xxxix, p. 757 (Oct. 1905); by R. GOLDSCHMIDT, Zool. Zentrbl. xii, p. 549 (10 Oct. 1905); in LUDWIG (200).
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40. *BREITFUSS, L. L. Expedition für wissenschaftlich-praktische Untersuchungen an der Murman-Küste. Zoologische Studien im Barents-Meere auf Grund der Untersuchungen der Expedition ; vorläufige Berichte. 1. Liste der Fauna des Barents-Meeres. 8 pp. Petersburg. (1904.) [III, A, v.]

41. BRESSON, —. Feuilles de Luz, Tarbes, Urdos. Bull. Carte géol. France, xvi, pp. 87-94. [III, b, iv, h.]
42. BRIVES, A. Les Terrains crétacés dans le Maroc occidental. Bull. Soc. géol. France (4), v, pp. 81-96, pl. i. (April.) [III, b, iii, b, 2.]
- BROILI, F. (32) Zool. Rec. 1902. Abstract by N. J. KARAKASCH, Annuaire géol. min. Russie, vii, p. 41.
43. BROWNE, E. T. Notes on the Pelagic fauna of the Firth of Clyde (1901-1902). P. R. Soc. Edinb. xxv, pp. 779-791. (July.) [III, a, ii.]
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45. CALVET, L. La station zoologique de Cette. (Son origine, son évolution, son organisation actuelle, avec une esquisse de la faune et de la flore marines de la région et un compte rendu des fêtes jubilaires de la station.) Trav. Inst. Montpellier (2), xv, vi+96 pp., xvi pls. [III, a, ii.]
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- CARPENTER, G. H. See KEMP (152).
- CAZIOT, E. See MAURY (210).
47. CHAUTARD, J. Notes sur les formations éocènes du Sénégal. Bull. Soc. géol. France (4), v, pp. 141-153, pls. iv-v. (July.)
Echinolampas anceps by J. LAMBERT, [III, b, ii, f. IV, c.]
Abstract by J. LAMBERT, Rev. paleozool. x, p. 64 (Jan. 1906).
- CHECCHIA, G. (39 & 40) Zool. Rec. 1902. Abstracts : by VINASSA DE REGNY, Geol. Centrbl. vii, pp. 504-505 (15 Jan. 1906).—(30) Zool. Rec. 1903. Abstract : Boll. Com. geol. Ital. xxxv, p. 290 (1904).
48. —. Contributo alla conoscenza del Pliocene della Capitanata. L'Esursionista Meridionale, i, pp. 1-3. (March.) [III, b, ii, c.]
49. —. Il gen. *Arbacia* trovato vivente la prima volta in Italia. Natural. Sicil. xvii, pp. 249-252. (1 June.) [III, a, ii.]
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Echinoderma determined by P. DE LORIOL.
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Review by J. LAMBERT, Rev. paleozool. ix, p. 164 (July, 1905).
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- CLARK, H. L. (38) Zool. Rec. 1904. Abstract in LUDWIG (200).

55. [CLARK, H. L.] Fauna of New England. 4. List of the Echino-
dermata. Pap. Boston Soc. vii, 16 pp. (Feb.) [II, E, iv. III, A, ii.]
Abstract : in LUDWIG (200).
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[III, B, ii, f.]
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II. BIOLOGY.

(A.) EVOLUTION.

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- ii. **Relations of Echinodermata** :—Place and definition of *Echinodermata* in an embryologic classification of *Metazoa*; HALLEZ (127).—*Echinodermata* allied with *Enteropneusta* to form a phylum *Ambulacraria*; GROBBEN (124).—Brief account of previous theories, exposition, and criticism of the Pentasomaea of Herouard (121, Zool. Rec. 1904); KEMNA (151).
- iii. **Phylogenies of smaller groups** :—Zonal Evolution of Chalk *Micraster*; TREACHER (319) p. 158.

(B.) MORPHOLOGY.

i. **Anatomy** :—

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- 1. General accounts :—GROBBEN (124).—HERTWIG (136 & 136A) pp. 300–320.—PORTER (259).—Popular; SCHERREN (289) : littoral Echinoderms; FURNEAUX (102A) pp. 157–171, pl. iv : structure and classification; DAVIS (68) ii, p. 450, text-figg. and coloured plate.
- 2. Symmetries :—Vacant.
- 3. Homologies of Classes :—Vacant.
- 4. Skeletal tissue or Stereom :—The commencing spicule not a tetrahedron; WOODLAND (344) p. 312.
- 5–8. Vacant.
- 9. Nerve-System and Sense-organs :—LUKAS (201).—“Direction-eyes” in *Ech.* and *Ast.*, popular; DAVIS (68) vii, p. 41.
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b. **HOLOTHURIOIDEA**.

- 1. General Anatomy :—General account, semi-popular; SHELDON (299) pp. 190–195: ditto, in Dutch; KONINGSBERGER (166) pp. 1–12, pls. i–iii.—Anat. *Caudina arenata*, orig. fig.; KINGSLEY in HERTWIG (136).—Anat. *Synapta bergensis*; ÖSTERGREN (235).—Anat. notes on various spp., see genera under III, A, iv & vi; PERRIER (249: ditto, see III, A, iii; KOEHLER & VANEY (164).
- 2–5. Vacant.
- 6. Hydrocoel and associated cavities :—Sucking feet and other podia of *Synallactes*; PERRIER (249) p. 7.
- 7. Coelom and other body-cavities :—Genital lacuna and aboral sinus in *Phyllophorus*; POLARA (258).
- 8. Digestive System :—Vacant.
- 9. Nervous System and Sense-organs :—Nerve-fibrils in perioesophageal ring *Synapta*; BOCHENEK (33).
- 10. Mesodermal tissues (exc. skeletal) :—Vacant.
- 11. Axial organ :—Vacant.
- 12. Genital System :—Genital caeca and connection with gonoduct in *Phyllophorus*; POLARA (258).

c. **ECHINOIDEA**.

- 1. General Account :—Semi-popular; SHELDON (299) pp. 171–190: elementary “sea-urchin”; COLTON (62) I, p. 338.
- 2. Symmetries :—Vacant.
- 3. Homologies with other Classes :—Vacant.
- 4. Stereom :—Formation of spicular skeleton in *Echinus pluteus*; WOODLAND (344).—Section of *Echinus radiola* × 60 diam.; KERR (153) p. 65, pl. xv.

5. Skeletal Anatomy :—Apical system *Schizaster*, TORNQUIST (316) p. 330 and fig.—Jaws, fossil epiphyses ; HUCKE (143) p. 166, pl. xxiii.
6. Hydrocoel &c. :—Vacant.
7. Coelom &c. :—Vacant.
8. Digestive System :—Branched caecum of intestine, *Echin-arachnius* ; GREGORY (120).
9. Nervous System :—Nerves of pedicellariae ; KIERNIK (154 & 155).
10. Mesodermal tissues (exc. skeletal) :—Histology of pedicellariae of *Paracentrotus* and *Parechinus*, esp. muscles, smooth and striped ; KIERNIK (154 & 155).
- 11, 12. Vacant.
- d. ASTEROIDEA.

 1. General Account :—Semi-popular ; SHELDON (299) pp. 161–169.—Elementary “common starfish” ; COLTON (62) I, p. 331.—Anat. notes on anus, podia, superambulacrals, Polian and Tiedemann’s bodies, caeca of gut, septa of body-cavity, arm-muscles, generative organs, and gonads of *Ast.* mostly deep-sea, dredged by Albatross, see genera under III, A, iv ; LUDWIG (197).—Anat. notes as above on *Ast.* from S. Patagonia, see genera under III, A, vi ; LUDWIG (199).
 2. Symmetries :—Plane of symmetry of a $\frac{1}{2}$ -larva is at right angles to plane of first cleavage ; DRIESCH (87).
 - 3, 4. Vacant.
 5. Skeletal Anatomy :—Pedicellariae ; LUDWIG (197) p. 9 et passim.—Actinolateral spines of *Retaster* are modified adambulacral spines ; LUDWIG (199) p. 66.
 7. Coelom and other body-cavities :—Ventral blood-lacunae in *Astropecten*, *Palmipes*, and *Asterias*, anat. and histol. ; PIETSCHMANN (256).
 - 8–10. Vacant.
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 - e. OPHIUROIDEA.

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 - 2–4. Vacant.
 5. Skeletal Anatomy :—Vertebrae composed of two successive ambulacral pairs (p. 165), mouth skeleton in primitive *Oph.* p. 167 ; BATHER (21).
 6. Hydrocoel and associated cavities :—Podial pores restricted in *Ophiozona*, *Ophiolipus*, and *Ophiura*, podia absent ? ; BELL (25) p. 256.
 - 7–12. Vacant.
 - f. CRINOIDEA.

 1. General Accounts :—Semi-popular ; SHELDON (299) pp. 151–160.—General form and size ; HAMANN (129) p. 1445.—General anat. *Pentacr.* [= *Isocr.*] *decorus*, with good diagram section ; REICHENSPERGER (267).
 - 2, 3. Vacant.
 4. Stereom :—Integument and stereom ; HAMANN (129) p. 1447.
 5. Skeleton :—General account ; HAMANN (129) p. 1449.—“Arm” restricted to final series (p. 166), “Syzygy” restricted as proposed by Bather (21 Zool. Rec. 1897) (p. 167), “Synar-

thrie" for articulation between brachials (p. 168), "Syzygial pair" consists of two independent brachials "hypozygal" and "epizygal," the method of reckoning adopted by Bather (op. cit. et passim) fully adopted and proved (pp. 168-177, 180), more than one branching due to regeneration (see II, D, vii, f); MINCKERT (214).—IBB supposed in *Apioecr.*; TROLL (315).—Complete description of *Cleioecr.*, comparison with *Reteocer.* and *Glyptocer.*; SPRINGER (306).

6. Hydrocoel &c.:—Water-vascular system and pores; HAMANN (129) p. 1480.
 7. Coelom &c.:—General account; HAMANN (129) p. 1487.
 8. Digestive System:—Relations of subvective grooves, mouth, gut and anus in *Antedon*, orig. fig.; KINGSLEY in HERTWIG (136) p. 341.
 9. Nervous Systems:—Axial canals (p. 1466) and nervous system (p. 1468), sense-organs (p. 1478); HAMANN (129).—Dorsal nerve-system *Pentaecr.* [= *Isocr.*] commissure in BB, brachial chiasmas, chambered organ blind above, its extensions in stem and cirri, function partly nutritive; REICHENSPERGER (267).
 10. Mesodermal tissues (exc. skeletal):—Muscles of arms and cirri; HAMANN (129) p. 1463.
 11. Axial organ:—General account; HAMANN (129) p. 1492.—Of *Pentaecr.* [= *Isocr.*]; REICHENSPERGER (267).
 12. Generative Organs and Gonads:—Axial complex connected with genital rachides, lymph-cells wander outwards and change into gonads; REICHENSPERGER (267).
- g. *CYSTIDEA*.
1. General Account:—Semi-popular; SHELDON (299) pp. 145-149.
 - 2-12. Vacant.
- h. *BLASTOIDEA*.
1. General Account:—Semi-popular; SHELDON (299) pp. 149-151.
 - 2-12. Vacant.

ii. Variation:—

- a. In form:—Vacant.
- b. In form and surface characters:—in *Peltaster nidarosiensis*; GRIEG (121); in *Pentagonaster granularis*; GRIEG (122); in mouth-shields of *Ophiura signata*; KEMP (152) p. 193, pl. xxxv.
- c. In colour:—in *Ophiolepis* not due to different pigments; GRIFITHS (123).—Colour in life of various spp. of *Muelleria*, *Stichopus*, *Holothuria*; KONINGSBERGER (166); in life and spirit of deep sea *Hol.*, for genera see III, A, iii; KOEHLER & VANNEY (164); in formol of Somali *Hol.*, see III, A, iii; VANNEY (326); in life of *Synapta digitata*, *Cucumaria elongata* et juv., *Synapta digitata profundicola* (and in spirit), *Laetmogone violacea*, *Asthenosoma hystrix*; KEMP (152); in life of many *Ast.*, see III, A, iv; FISHER (92).—Colour of littoral *Oph.*, see list of genera III, A, iii; KOEHLER (160).
- d. Meristic variation:—
 1. Variation from pentamerous symmetry:—4 rayed *Astropecten exiguis*; LUDWIG (197) p. 72.—4 rayed *Nymphaster subspinosa*; KEMP (152) p. 189.—4 and 6 rayed *Pentagonaster granularis*; GRIEG (122) p. 5.—5 and 6 rayed *Ophiactis savignyi*; KOEHLER (160) p. 26.
 2. Reduplication or absence of parts:—Apparent discontinuous variation often due to augmentative regeneration; MINCKERT

(214) & PRZIBRAM (262) p. 89.—Duplication of interradials in *Cryptoblastus*; ROWLEY (282) p. 301.—Suppression of cirrus and corresponding swelling of process from chambered organ in *Pentacr.* [*Isocr.*]; REICHENSPERGER (267) p. 180.

- e. Abnormalities:—in tuberculation and in arrangement of podial pore-pairs, *Cyphosoma abbatei*; FOURTAU (99) p. 123.—Teratogenesis; PRZIBRAM (262).

iii. Secondary Sexual Characters:—

- a. Differences of Form or Structure:—Vacant.
- b. Differences of Colour:—Vacant.
- c. Protection of Young:—DAVIS (68) vi, p. 356.—Origin of, compared with symbiosis, instances in *Echinoderma*; GIARD (110) pp. 254, 256.—Marsupial petals in *Amphipneustes koehleri*; MORTENSEN (220) p. 243.—“Eine Art von Brutpflege” in *Asterina fimbriata*; LUDWIG (199) p. 63.

(C.) PHYSIOLOGY.

- i. General:—Vacant.
- ii. Circulation:—in ventral lacunae and podia of *Ast.*; PIETSCHMANN (256).
- iii. Respiration:—DAVIS (68) IV. p. 411.—Osmotic pressure of perivisceral fluid in *Thyone*, *Arbacia*, and *Asterias*; GARREY (108).
- iv. Alimentation and Digestion:—Vacant.
- v. Excretion and its Products:—Lymphocyte formation in axial organ of *Ast.*; PIETSCHMANN (256).—Pigment of ova and larvae of *Ech.*, its origin and biological value; GARBOWSKI (107) p. 615.—Pigment of *Oph.*, esp., *Ophiopholis belli*, chemical and physical analysis; GRIFFITHS (123).
- vi. Sensation:—Sensation and sensibility. Have Echinoderms consciousness? not necessary. List of observations bearing on consciousness that remain to be made (p. 260); LUKAS (201).—Taxis and tropism; PRZIBRAM (262).—Tentacle-reflex in *Cucumaria*; GRAVE (118).—Need of central nervous system for oxygen as proved by experiments on *Echinus* and *Ophioderma*; BAGLIONI (12c).
- vii. Miscellanea and Experimental Physiology:—Introduction to experimental morphology; PRZIBRAM (262).—Protoplasm of ova broken up by centrifuge, *Asterias*, *Strongylocentrotus*, *Sphaerechinus*; GURWITSCH (126).—Blood of *Ech.* no haemolytic action on blood corpuscles of bird and mammal; FRIEDENTHAL (99A) p. 499.—Lecithin in sexually active gonads of *Toxopneustes*; LOISEL (194).

(D.) BIONOMICS.

- i. General Accounts:—(a) popular; GALLUP (104); SCHERREN (289).—Deep-sea Echinoderms, popular, JOUBIN (149) pp. 25, 119, figg. 21–24, 104–139. (b) KONINGSBERGER (166) pp. 22–25.
- ii. Special habits:—Burrowing of *Hol.*; DAVIS (68) v, p. 230: of *Ophiocnida brachiata* by podia; KEMP (152) p. 181.—Phosphorescent *Diadema*, *Amphiura*, *Ophiacantha*, *Brisinga*; PUETTER (263) p. 23.
- iii. Habitat:—(a) of all species in Trondhjem Fjord; STORM (309).—Various *Hol.*, *Ech.*, *Ast.*, *Oph.*, see III, A, ii, Faeroes and Iceland;

- HØRRING (142).—Various spp. at Balearic Is.; BUEN (44). (b) Of various spp., see lists III, A, ii; KEMP (152).—*Bathyplotes*, *Mesothuria*, *Cucumaria*, *Myriotrochus*, on clay in deep water; NORDGAARD (230) p. 241.—*Cucumaria* at Beaufort, N. C.; GRAVE 118. (c) of various spp., see lists III, A, ii; KEMP (152). (d) Bottom affected by spp. of *Ast.* in Pacific, for genera see III, A, iv; LUDWIG (197): ditto, S. Patagonia, see III, A, vi; LUDWIG (199).—*Ctenodiscus crispatus*, mud-eater; NORDGAARD (230) p. 244. (e) of various spp., see lists III, A, ii; KEMP (152).—*Ophiacantha spectabilis* on *Lophophelia*, ? always; NORDGAARD (230) p. 239. (f) of *Antedon bifida*, bottoms of moored hulks; KEMP (152) p. 179.
- iv. **Feeding**:—(a) LUKAS (201): Food; DAVIS (68) III, p. 153, IV, p. 264. (d) *Asterias rubens* eats hermit-crabs; BOLAU (36).
- v. **Defence and Protection**:—Protection (IV, pp. 285, 287), Protective armour (IV, p. 340), Active defence (IV, p. 361); DAVIS (68).
- vi. **Locomotion**:—(a) movement in general and locomotion; LUKAS (201).—Swimming Echinoderms (V, p. 23), creeping Echinoderms (V, p. 90, figg.); DAVIS (68). (b) *Synapta* movements; SAFFORD (284) p. 89. (d, e, f) Climbing of *Ast.* (V, p. 231), of *Oph.* and *Crin.* (V, p. 278), Locomotion of *Oph.* (V, p. 114); DAVIS (68).
- vii. **Autotomy and Regeneration**:—(a) Autotomy; LUKAS (201).—Regeneration, experimental; MAAS (202) p. 98: and teratogenesis; PRZIBRAM (262). (b) Autotomy or division above coil of gut produces a straight gut, in *Synapta*; ÖSTERGREN (235) pp. cxxxv, cxlv. (c) Pluteus of *Mellita testudinata* lacks this faculty almost wholly; GRAVE (119). (d) Regeneration, *Ast.*; MCINTOSH (204): DAVIS (68) VI, p. 328.—Forked disc-appendage probably due to regeneration, in *Porcellanaster pacificus*; LUDWIG (197) p. 90. (e) Rate of regeneration of rays in *Ophioglypha*; ZELENY (339) pp. 7-17: more rapid the greater the injury; ZELENY (340). (f) Regenerated parts of a lighter colour than the older parts, in arms of *Antedon* (p. 178), regeneration of cirri, of disc [i.e. tegmen and viscera], of pinnules, of rays [i.e. brachia], of arms [i.e. finials], the last being either simply reproductive or augmentative (pp. 187-205); in *Antedonidae* and *Actinometridae* all arm-branching after the first is due to augmentative regeneration (pp. 210-232), syzygies and modified articulations are predestined planes of autotomy, hypozygals are predestined bases of regeneration (pp. 232-240); MINCKERT (214).—Regeneration of cirri in *Pronachocr.* (p. 501), of arms in *Promachocr.* and *Decametrocr.* contrasted (p. 493); MINCKERT (213).
- viii. **Parasites and Commensals**:—(a) PÉREZ (246).—Resemblance of their position to that of the young; GIARD (110) p. 256. (b) *Gasterosiphon* (olim *Entosiphon*), gastropod in *Deima blakei*; KOEHLER & VANNEY (164) p. 56. (c) *Pinnavodes chilensis*, Decapod Crustacean in rectum *Strongylocentrotus*; ORTMANN (234) p. 697.—*Eumedon*, a crab commensal in apical region of *Echinothrix*; BOUVIER (37). (d) *Myzostoma fisheri* in body-cavity of *Tosia leptoceranus* Fisher, S. California; WHEELER (327); FISHER (92) p. 307.—*Dendrogaster*, cirripede in body-cavity of *Dipsacaster* and *Echinaster*; LE ROI (182).—Branched parasite, nondescr., in *Persephonaster armiger*, perhaps parasitic castration; LUDWIG (197) p. 41. (e) Gastropod on *Ophiotrix stelligera*; KOEHLER (160) p. 87.—A Chaetopod, *Ophiuricola cynips*, parasitic on arms of *Ophioglypha tumulosa*; LUDWIG (198). (f) *Myzostoma* on *Antedon*; GRAEFFE (117).—Coral, *Monilopora amplexa* causing swellings on *Crin.* stems, esp. *Platyocr.*, also constriction of stems by *Bryozoa*; ROWLEY (282) p. 304.

- ix. **Echinoderms as Food** :—(a) DAVIS (68) VII, p. 217. (b) *Stichopus* and *Cucumaria* food of *Gadus callarias*, *Phyllophorus* food of *G. aeglefinus*; NORDGAARD (230) p. 161.—*Thyone fuscus* in *Scyllium*; KEMP (152) p. 178.—*Hol.* as food of man; KONINGSBERGER (166). (c) *Toxopneustes* as food of *Anarrhichas lupus* (p. 183); DITLEVSEN (77). *Amphidetus cordatus* as food of *Hippoglossoides platessoides* (p. 205); HØRRING (142). (e) *Ophiopholis aculeata* as food of *Gadus callarias* (p. 193), ditto and *Ophioglypha albida* as food of *Hippoglossoides platessoides* (p. 205); HØRRING (142): *Oph.*, of *H. platessoides*; DITLEVSEN (77) p. 206.
- x. **Echinoderms in Geological Aspect** :—Relations of Echinoderm remains to dolomitization; SKEATS (302) pp. 124, 135.—Pseudogaylussite and *Ech.* tests; MACNAIR (205).—*Crin.* as rockformers Trias and Lias of E. Alps; ESCHER-HESS (89).—Crinoid Limestones of Liassic (p. 268), Lower Cretaceous (pp. 271–274), and Upper Cretaceous (pp. 273, 274) of Unterengadin; PAULCKE (243).

(E.) MISCELLANEOUS.

- i. **Research and Instruction** :—
 - a. **Preservation** :—Collection and preservation of littoral Echinoderms; FURNEAUX (102A) p. 79.—Curious methods of collecting foss. *Ech.*; SAVIN (286) p. 111.—Formol dangerous for Echinoderms; BELL (26) p. 241.—Staining pluteus of *Echinus* for study of spicules; WOODLAND (344) p. 308.
 - b. **Methods of research** :—Importance of biometry in taxonomy; EDWARDS (88).—Method of measuring spicules in *Synapta*; ÖSTERGREN (235) p. cxxxvii.—Decalcification and staining, *Pentacr.*; REICHENSPERGER (267).—Study of axial organ in *Ast.*, decalcification; PIETSCHMANN (256).—Celloidin paraffin sections of yolk ova; HENDERSON (134).
 - c. **Museum Exhibits and Collections** :—Boston, Mass., museum guide, *Echinodera* recent and fossil; SHELDON (299) pp. 145–195.—Tübingen Geol. Mus. Guide, mentions Echinoderms in collection, esp. *Pentacr. subangularis*; KOKEN (165).—Nicholson Institute, Leek, Staffs, Carboniferous *Crin.*; WARDLE (331).—Types of Cretaceous *Ech.*, *Ast.*, *Crin.* at Acad. Nat. Sci., Philadelphia; JOHNSON (146).—List of type-specimens of fossil *Echinodera* in U. S. NAT. Mus. (322): of fossil *Pelmatozoa* in State Mus. N. Y.; CLARKE (57 & 60).
 - d. **Instruction** :—Text-books; GROBBEN (124), HERTWIG (136 & 136A), PORTER (259).—Elementary account and guide to practical work of recent Echinoderms, esp. starfish and sea-urchin; COLTON (62) i, p. 331, ii, p. 177.—Dissection of Starfish and Sea-urchin, and Holothurian; WEED (332).—Characteristic fossils; FRAIPONT (99).—Guide to experimental morphology; PRZIBRAM (262).—Ditto, embryology; MAAS (202).
- ii. **Economics** :—see II, D, ix, Echinoderms as food.—Commercially valuable spp. of *Hol.*, districts of trepang-fishery in Dutch E. Indies; KONINGSBERGER (166) pp. 26 et seqq.—*Ech.* as “personal enemies” of man; DAVIS (68) VIII, p. 344.—*Asterias* diminishes numbers of *Pleuronectes platessa* by eating their molluscan food, its value as manure; PETERSEN (253).
- iii. **Bibliography** :—Literature for 1893 abstracted; BERGMANN (30): for 1905; LUDWIG (200): of *Crin.*; HAMANN (129) pp. 1431–1441: of Arctic *Ech.*; DOEDERLEIN (79) p. 393: of Arctic *Crin.*; DOEDER-

LEIN (80) pp. 405-406.—Troost's unpublished monograph on fossil crinoids of Tennessee; CLARKE (59) & GLENN (114) p. 79.—Account of S. A. Renier, Tavola alfabetica delle conchiglie adriatiche, especially as bearing on Molluscan and Echinoderm name *Discoides*; BATHER (19).

- iv. **Historical, Popular notions, &c.**—History of opinion concerning axial organ; PIETSCHMANN (256).—History of discovery, *Crin.*; HAMANN (129) pp. 1442-1444.—Troost's monogr.; CLARKE (59) and GLENN (114).

Popular names at Skerries, Co. Dublin, Crossâne for *Uraster rubens*, Morane for *Ophiura albida*; COLGAN (61) p. 213.—Popular names of the commoner New England Echinoderms; CLARK (55).—Lapp names for *Echinus*, *Asterias*; QVIGSTAD (264) pp. 386, 387.—Native names for *Hol.* spp. in use in Malaysia; KONINGSBERGER (166) pp. 27-34, et passim.

(F.) AUXOLOGY.

- i. **General Principles:**—Growth in general; PRZIBRAM (262).—Different modes of development—poecilogony—in the same or closely allied species, how originating; GIARD (111) p. 621.
- ii. **General Accounts:**—(a) Life histories; DAVIS (68) vi, p. 354, figg. (b) semipopular, in Dutch; KONINGSBERGER (166) pp. 13-18, pls. iv, v.
- iii. **Formation of Gonads:**—(a) Spermatozoa of *Antedon*, *Brissopsis*, *Mesothuria*; RETZIUS (275). (b) Lining cells of genital caeca develop supporting cells and glandular cells which assist the nutrition of the gonads and the embryo, *Phyllophorus*; RUSSO (283). (c) Glandular elements associated with spermatozoa in *Strongylocentrotus*; RUSSO (283).—Ovum of *Paracentrotus*, pigment ring and relations to axis, polarity of *Ech.* ovum; GARBOWSKI (107). (d) Maturation due to hunger of the ovum, ova of *Asteracanthion* ripened by removal from ovary; HERTWIG (137) p. 202.
- iv. **Oviposition, Fertilisation, and Segmentation:**—Time of breeding-season for *Hol.*; KONINGSBERGER (166) pp. 19-22.—Breeding period of *Asterina fimbriata* (p. 63), two breeding periods per annum in *Cycethra verrucosa* (p. 58); LUDWIG (199).—Fertilisation, summary of recent work, esp. Buller and Giardina; LOISEL (193).
- v. **Larval Stages:**—(a) McINTOSH (204). (c) Pigmentation of larva, its increase by hybridisation; GARBOWSKI (107) p. 613.—Rearing larvae of *Echinus esculentus*; WOODLAND (344) p. 306. (d) Early stages of an Asterid with yolk eggs, anatomy, histology; HENDERSON (134).
- vi. **Organogeny:**—(c) *Echinoidea*:—(10) Origin of mesenchyme in *Echinus*, protoplasmic continuity of cells; WOODLAND (344) p. 308.
- vii. **Post-larval Growth-stages:**—(b) Increase in number of polian vesicles and stone-canals with age in *Holothuria*; EDWARDS (88). (c) Neanic *Micraster coranguinum* 11 to 50 mm. long, studied with reference to development of ambulacra, plastron, apical system, peri-proct, peristome, and fasciole; VALETTE (324) p. 40. (d) Young stages of *Pararchaster pectinifer* (p. 16), of *Archaster typicus* (p. 53), *Asterina cepheus* (p. 157), *Zoroaster* (p. 177), *Z. longispinus* (p. 183); LUDWIG (197); of *Asterodon*, *Odontaster*, *Porania*, *Cycethra*, *Asterina*; LUDWIG (199). (e) Young stages of various *Oph.*, see list of genera III, A, iii; KOEHLER (160).

viii. Developmental mechanics and Experimental Embryology :—General account ; MAAS (202).—General chapters on die Zeugung, die notwendigen Stoffe, der Eibau ; PRZIBRAM (262).—Echinoderm ovum and sperm-ovum illustrating cellular mechanics, segmentation, and development ; GURWITSCH (125) *passim*, with figg. after previous authors.—Experiments on segmentation, differentiation of tissues and organs, illustrated by *Ech.* and *Ast.* ; MAAS (202) pp. 24, 84.—Mesenchym-composition in *Ech.* larvae developed from inharmoniously united blastomeres ; DRIESCH (86).—Equipotence of ectoderm and endoderm in larva of *Asterias* and *Astropecten*, larvae from fragments ; DRIESCH (87).—Relation of size and number of cells in larvae to chromosomes of ovum ; experiments on *Echinus* and *Strongylocentrotus* ; BOVERI (38) : same continued by doubly fertilised *Ech.* ova ; BOVERI (39).—Modification of segmentation by artificial increase of yolk ; SANZO (285).—Retardation of development by increased temperature ; PETER (251).—*Sphaerechinus* gastrulae developing rapidly in warmth vary in number of mesenchyme-cells more than do those developing slowly in cold ; PETER (252).—Effect of removal of oxygen on segmentation of sperm-ova of *Arbacia* ; LOEB (184).—Action of spectrum rays, of ultraviolet light, of diffuse light on mitosis of sperm-ova of *Echinus microtuberculatus* ; HERTEL (135).—Lithium bromide produces exogastrulation in *Ech.* ; GARBOWSKI (106).—Effects of acid, alkali, phenol-phthalein, and di-methyl-amido-azo-benzol on sperm-ova of *Echinus* ; WHITLEY (340) : ditto, and comparison with cell-growths in malignant disease ; MOORE (217).

Hybridization :—BOVERI (38).—*Echinus*, *Strongylocentrotus*, and *Sphaerechinus* ♀ × *Antedon* ♂, and vice versa, brought to plutei, mother-characters only, also gastrulae from enucleated *Ech.* ova × *Antedon* ; GODLEWSKI (115).—*Echinus esculentus*, *Paracentrotus lividus*, and *Parechinus miliaris* in various combinations, Plutei without entoderm from *Echinus esculentus* ♂ and *Paracentrotus lividus* ♀ ; GARBOWSKI (106).—*Paracentrotus lividus* ♀ × *Spatangus purpureus*, *Sphaerechinus granularis*, and *Parechinus microtuberculatus* ; GARBOWSKI (107) p. 614.

Artificial Parthenogenesis :—General discussion ; ARIOLA (12A).—General summary of recent work, esp. Ariola, Viguier, Loeb, Delage ; LOISEL (193).—Summary and discussion of results obtained by Loeb et alii ; VERWORN (327).—General discussion of physico-chemical theory of fertilisation ; FISCHER (91A).—General discussion as to importance of nucleus ; ARIOLA (12B).—Methods of inducing parthenogenetic development of *Ech.* ova ; DRIESCH (85) p. 649.—Action of various salts and different concentrations on *Asterias* ova, fused blastulae ; DELAGE (70).—*Asterias* ova, increase of osmotic pressure not necessary, segmentation proceeding to blastula in a pure solution of manganese chloride, action of other salts, addition of calcium carbonate to carbonic acid produces fusion of numerous blastulae ; DELAGE (71).—Influence of temperature, of acid, on *Ech.* and *Ast.* ova, *Ast.* larva lives 4 months 19 days ; DELAGE (72).—Merogonic development sperm-ova *Psammechinus* and *Strongylocentrotus*, mitosis, cellular autotomy ; KRAHELSKA (168).—Piéri's ovulase disproved by experiments with *Strongylocentrotus lividus* ; PIZON (257).—Artificial formation of membrane in unfertilised ova of *Strongylocentrotus* produced by concentrated solutions ; LOEB (185) : ditto by hypertonic sea-water and ethyl acetate, resulting in normal development ; LOEB (186) : Remarks on preceding ; BOHN (34) : Similar results by substituting acetic, formic, or carbonic acid for ethyl acetate ; LOEB (187 & 188) : ditto, by fatty acid, segmentation after subsequent exposure to hypertonic sea-water for a shorter period, discussion of membrane-

forming acids ; LOEB (189) : ditto, development in *Asterina*, compared with *Strongylocentrotus* and *Arbacia* ; LOEB (190).—Theory of antagonistic action of various salts ; LOEB (191).—Artificial fertilisation ova of *Moera atropos* ; GRAVE (119).—Cytology of parthenogenetic larvae of *Strongylocentrotus* and *Echinus* ; DRIESCH (85).—Reply to BOHN, G. ; VIGUIER (328).—Reply to LOISEL (193), parthenogenetic and fertilized *Ech.* ova compared ; VIGUIER (329).—See further : BATAILLON (17) : BIGNY (31) : BOVERI (38) : *Ast.* ; GARBOWSKI (105).

III. DISTRIBUTION*.

A. GEOGRAPHICAL.

- i. General :—Distrib. dependent on hydrographical conditions and bottom, evidence from Norwegian Echinoderms (pp. 229–244), *Asterias rubens*, transported by tidal current (p. 232) ; NORDGAARD (230).—Bipolarity discussed with reference to (*inter alia*) *Hol.* after Theel ; BORCHGREVINK (36A) p. 530.—Bipolarity, *Psolus squamatus* alone among *Hol.*, general discussion of question ; PERRIER (249) pp. 65, 124.
- ii. Atlantic Ocean and adjacent Seas :—*Oph.* new to this Ocean are *Ophioglypha flagellata*, *O. inornata*, *O. clemens*, *Ophiotypa simplex*, *Ophiacantha valenciennesi*, many others are listed ; KOEHLER (159).—Distrib. of *Peltaster midarosiensis* ; GRIEG (121) p. 11 : of *Pentagonaster granularis* ; GRIEG (122) p. 11.
North Atlantic, Sub-Arctic, vide III, A, v ; DOEDERLEIN (79 & 80).—Iceland, *Cucumaria*, *Trochostoma*, *Echinocucumis*, *Benthodutes*, *Strongylocentrotus*, *Brissopsis*, *Dorocidaris*, *Stereocidaris*, *Porocidaris*, *Phormosoma*, *Calveria*, *Sperosoma*, *Echinus*, *Pourtalesia*, *Asterius*, *Ctenodiscus*, *Cribrella*, *Bathybiaster*, *Solaster*, *Hymenaster*, *Pontaster*, *Astropecten*, *Goniaster*, *Zoroaster*, *Pentagonaster*, *Mimaster*, *Retaster*, *Pararchaster*, *Astrogonium*, *Pteraster*, *Freyella*, *Ophioglypha*, *Ophiopholis*, *Ophiacantha*, *Ophiopleura*, *Ophioscolex*, *Gorgonocephalus*, *Ophioceten*, *Ophiactis*, *Amphiura*, *Amphilepis*, *Ophiomusium*, *Antedon* ; SCHMIDT (291) pp. 18–24.—S. of Iceland, *Urechinus*, *Hemaster*, and *Pourtalesia* n. sp. ; MORTENSEN (220).—Faeroes and Iceland, *Cucumaria*, *Psolus*, *Echinus*, *Strongylocentrotus*, *Amphidetus*, *Spatangus*, *Asterias*, *Cribrella*, *Solaster*, *Ophiopholis*, *Ophiacantha*, *Ophioglypha* ; HØRRING (142).
Norway :—Fauna of fjords ; NORDGAARD (230).—*Synapta* & *Labidoplax* n. spp. ; ÖSTERGREEN (235).—Trondhjem Fjord, locc. for various Echinoderms ; STORM (309).
- N. Sea : Echinoderm Plankton. See Bull. d. Resultats Conseil. Internat. p. l'explor. de la mer, 1903–04, Nos. 1–4, Partie D.—Off Helgoland, *Rhabdomolgus* ; LUDWIG (196).
British Coasts :—Firth of Clyde, *Auricularia*, *Bipinnaria*, *Pluteus* ; BROWNE (43).—Luce Bay, various Echinoderms ; JOHNSTONE (147) p. 221.—Near Plymouth, *Phyllophorus drummondi*, *Cucumaria montagui* ; NORMAN (232).—Plymouth, Dartmouth, and Galway, *Ophiopsila* ; NORMAN (233).—Irish Sea larval Echinoderms ; SCOTT (296).—Irish Sea, Skerries, Co. Dublin, *Comatula*, *Ophiura*, *Ophiocoma*, *Uraster*, *Solaster*, *Asterias*, *Echinus*, *Amphidotus* ; COLGAN (61).—Ballynakkil and Bofin Harbours, Co. Galway, *Synapta*, *Cucumaria*, *Thyone*, *Holothuria*, *Antedon*, *Astropecten*, *Asterina*,

* For the species found, refer to generic names under IV.

Henricia, Asterias, Ophiura, Ophiocnida, Amphiura, Ophiocoma, Ophiothrix, Echinus, Strongylocentrotus, Echinocyamus, Spatangus, Echinocardium; KEMP (152).—W. Coast Ireland, outside 50 fm. line, *Synapta, Cucumaria, Thyone, Psolus, Phyllophorus, Holothuria, Stichopus, Laetmogone, Rhizocr., Antedon, Pontaster, Plutonaster, Astropecten, Psilaster, Luidia, Pentagonaster, Nymphaster, Porania, Cheilaster, Palmipes, Stichaster, Neomorphaster, Zoroaster, Solaster, Pteraster, Hymenaster, Henricia, Asterias, Brisinga, Ophiura, Ophiocten, Ophiochiton, Ophiomusium, Amphiura, Ophiactis, Ophio-pholis, Ophiacantha, Ophiocoma, Ophiothrix, Ophiobrysa, Cidaris, Asthenosoma, Phormosoma, Echinus, Echinocyamus, Spatangus, Echinocardium, Brissopsis*; KEMP (152).

Rockall, complete list, *Cucumaria, Thyone, Holothuria, Antedon, Pontaster, Plutonaster, Astropecten, Luidia, Hippasterias, Stichaster, Henricia, Brisinga, Ophiura, Ophiactis, Ophio-pholis, Ophiothrix, Cidaris, Asthenosoma, Echinus, Spatangus, Pourtaleisia*; KEMP (152).

French Coasts:—Boulonnais, *Echinus*; HALLEZ (128) p. l.—Cotentin, Echinoderm fauna; FAUVEL (90).—Off Arcachon, *Pseudocucumis* n. sp.; KOEHLER & VANNEY (163).

Mediterranean:—near Cete. List of *Crin.* (p. 58), *Ast.*, *Oph.*, *Ech.*, *Hol.* (p. 59); CALVET (45).—Balearic Is., Echinoderms; BUEN (44).—G. of Palermo, *Arbacina*; CHECCHEA (49).

Portugal, additions to Echinoderm fauna; NOBRE (228) p. 82, and (229) pp. 132–134.

Near Canaries, *Pentacr.*, *Benthodytes*, and between Canaries and Azores, 5413 m., *Hyphalaster*, *Neomorphaster*; ALBERT (9): 400–5413 metres, ditto and *Salenia* and *Styracaster*; RICHARD (276) pp. 3, 4.

America, New England Coast, list of spp. of *Hol.*, *Ech.*, *Ast.*, *Oph.*, with locc. and depths; CLARK (55).—Anticosti, season, bottom, and depth of *Asterias*, *Solaster*, *Crossaster*, *Ophio-pholis*, *Strongylocentrotus*, *Pentacta*, *Psolus*, *Chirodota*: N. of G. St Lawrence, *Astrophyton*, *Echinarachnius*; SCHMITT (292).

iii. Indian Ocean and adjacent Seas:—Deep-Sea *Hol.* of ‘Investigator,’ *Mesothuria*, *Synallactes*, *Bathyptotes*, *Pelopatides*, *Benthothuria*, *Dendrothuria* n. g., *Pseudothuria* n. g., *Allopatides* n. g., *Perizona* n. g., *Bathyzona* n. g., *Oneirophanta*, *Amphideima* n. g., *Ophnurgus*, *Benthophyces* n. g., *Peniagone*, *Benthothuria*, *Dendrothuria* n. g., *Pseudothuria* n. g., *Allopatides* n. g., *Perizona* n. g., *Bathyzona* n. g., *Oneirophanta*, *Amphideima* n. g., *Euriplastes* n. g., *Benthodytes*, *Euphronides*, *Psychropotes*, *Gephyrothuria* n. g., *Filiturria* n. g., *Psolidium* (!), *Psolus*, *Trochostoma*, *Ankyroderma*, *Protankyra*, and *Anapta*, all with n. spp., also *Pseudostichopus*, *Laetmogone*, *Apodogaster*, *Deima*, and *Ipsilo-thuria*: comparison of Indian Ocean fauna with that of Sunda Archipelago (p. 6) and with others [Station 199 appears to be in the middle of Ceylon, vide sub *Ankyroderma et Trochostoma*]; KOEHLER & VANNEY (164).

Red Sea, n. sp. of *Gymnechinus* and list of common *Ech.*, *Ast.*, *Oph.*; KOEHLER (161).—G. of Aden, *Phormosoma* n. sp.; DOEDERLEIN (78).

Off E. Africa down to Cape Colony, and Agulhas current, *Orechinus* n. g., *Palaeolampas*, and n. spp. of *Phormosoma*, *Hygro-soma*, *Sperosoma*, *Lamprechinus* n. g., *Paracentrotus*, and *Spatangus*; DOEDERLEIN (78).—Somali Coast, *Thyone*, *Phyllophorus*, *Holothuria*, *Muelleria*, *Chondrocloea*, and n. spp. of *Cucumaria* and *Colochirus*; VANNEY (326).

S. Africa, S. and E. coasts, various locc., *Ophioderma*, *Amphiura*, *Ophiothamnus*, *Ophiothrix*, *Ophioscolex*, *Gorgonocephalus*, and n. spp. of *Ophiozona* and *Ophiura*; BELL (25): *Pseudarchaster*, *Leptoptychaster*, *Astropecten*, *Psilaster*, *Luidia*, *Pentagonaster*, *Calliaster*, *Culcita*, *Stichaster*, *Solaster*, *Retaster*, *Hymenaster*, *Henricia*, *Asterias*, *Asterina*, *Echinaster*, and n. sp. of *Palmpipes*, fauna allied to both N. Atlantic and Indian Ocean; BELL (26): *Antedon* n. spp., *Actinometra*; BELL (27).

Distrib. in Dutch E. Indies of commercial spp. of *Muelleria*, *Stichopus*, *Holothuria*; KONINGSBERGER (166).—Off Sumatra, *Pygmaecocidaris* n.g., and n. spp. of *Phormosoma* and *Palaeolampus*; DOEDERLEIN (78).—Littoral *Oph.* of 'Siboga,' *Pectinura*, *Ophiopelta*, *Ophiocoris*, *Ophiozona*, *Ophioglypha*, *Ophiactis*, *Ophiocnida*, *Amphiura*, *Ophiacantha*, *Ophiomastix*, *Ophiothrix*, *Ophiopteron*, *Ophiocampus*, *Ophiopsammium*, *Ophiocera*, *Ophioglyptis* n.g., *Astrophyton*, *Astrochalcis* n. g. all with n. spp., also *Ophiopeltella*, *Ophiolepis*, *Ophioplocus*, *Ophiostigma*, *Ophiopsila*, *Ophionereis*, *Ophiocoma*, *Ophiarachna*, *Ophiarthrum*, *Ophiomaza*, *Ophiocnemis*, *Ophiothela*, *Ophiomyxa*, *Astrochema*, *Euryale*, and *Sthenocephalus*, and *Ophiothrix* n. sp. 274 m.; KOEHLER (160).—Diego Garcia, *Mortensenia* n. g. *Ech.*; DOEDERLEIN (78).

New Amsterdam [?S. Indian Ocean, not Guiana], *Notechinus* n. g.; DOEDERLEIN (78).

iv. **Pacific Ocean and adjacent Seas:**—Alaska, n. spp. of *Mimaster*, *Pseudarchaster*, *Hippasteria*; FISHER (92).—Monterey Bay, Cal., 120 metres, *Psolus* n. sp.; FISHER (93).—Off California, n. spp. of *Porcellanaster*, *Bathybiaster*, *Dipsacaster*, *Persephonaster*, *Benthopecten*, *Dytaster*, *Odontaster*, *Pseudarchaster*, *Tosia*, *Mediaster*, *Hippasteria*, *Cryptopeltaster* n. g., *Lophaster*, *Peribolaster*, *Pteraster*, *Hymenaster*, *Zoroaster*, *Brisinga*, *Freyella*; FISHER (92).

E. Pacific, *Hol.*, *Ech.* at great depths (2), various locc., *Acoste*, *Aerope*, *Ankyroderma*, *Deima*, *Scotoplanes*, *Psychropotes* (3 & 4), *Benthodytes*, *Freyella*, *Brisinga* (4); AGASSIZ.—Pacific, Albatross, 1891, with depths, temperature, and bottom, n. spp. of *Cheiraster*, *Pararchaster*, *Plutonaster*, *Persephonaster*, *Dytaster*, *Psilaster*, *Astropecten*, *Parastropecten* n. g., *Luidia*, *Porcellanaster*, *Albatrossia* n. g., *Pseudarchaster*, *Mediaster*, *Nymphaster*, *Pentagonaster*, *Hippasteria*, *Pauliella* n. g., *Zoroaster*, *Sarkaster* n. g., *Hymenaster*, *Retaster*, *Cribrella*, *Alexandaster* n. g., *Pedicellaster*, *Stolasterias*, *Sporasterias*, *Hydrasterias*, *Brisinga*, and *Freyella*, also *Ctenodiscus* and *Paulia*; LUDWIG (197).—S. W. of Callao, *Ophioglypha tumulosa*, 5203 m.; LUDWIG (198).—Chile, *Arbacia*; PORTER (260).

Off Korea, n. spp., of *Myriotrochus* and *Eupryrgus*, ÖSTERGREN (236).

Tropical Pacific, Albatross 1899–1900, *Archaster*, *Astropecten*, *Hyphalaster* n. sp., *Culcita*, *Gymnasterias*, *Asterina*, *Linckia*, *Ophidiaster*, *Acanthaster*, *Mithrodia*, *Brisinga* n. sp. *Freyella* n. sp.; LUDWIG (197).—Ladrones, Guam Id., *Synapta* and other echinoderms; SAFFORD (284) p. 89.

Australia: 300 fm. 28 miles east of Sydney Heads, *Pannychia*; HEDLEY (133).—New Zealand, *Stichopus*, *Cucumaria*, *Pseudopsolus*, *Phyllophorus*, *Trochodota* and n. sp. of *Caudina*; PERRIER (249).

v. **Arctic Ocean and adjacent Seas:**—Arctic and sub-Arctic *Ech.* geogr. and bathymetric distrib., also temperature, comparison with Antarctic; DOEDERLEIN (79): ditto, *Crin.*; DOEDERLEIN (80).—Barents Sea, Echinoderm fauna; BREITFUSS (40).—Denmark Str., *Plexechinus* n. sp., Davis Str., *Pourtalesia* n. sp.; MORTENSEN (220).—N. W. of Jan Mayen, *Myriotrochus* n. sp.; ÖSTERGREN (235).

- vi. **Antarctic Ocean and adjacent Seas**:—*Ech.* and *Crin.* fauna compared with Arctic, vide III, A, v; DOEDERLEIN (79 & 80).
 C. Horn and neighbourhood, *Synallactes*, *Stichopus*, *Cucumaria*, *Thyone*, *Psolidium*, *Isolus*, *Cardina*, *Trochodata*, *Chiridota*; PERRIER (249).—Kerguelen, *Trochostoma*; PERRIER (249) p. 65.—S. Patagonia, Swedish Exped. 1895–97, *Asterodon*, *Odontaster*, *Porania*, *Cycethra*, *Asterina*, *Solaster*, *Retaster*, *Cribrella*, *Cosmasterias*, *Sporasterias*, *Labidiaster*, *Ophioglypha*, *Ophiactis*, *Amphiura*, *Ophiomyxa*; LUDWIG (199).
 Antarctic continent littoral:—Two figures from photographs of *Oph.*, one with young, both labelled “Seestern”; BORCHGREVINK (36A) pp. 518, 519.—“Discovery,” *Echinus*, *Cycethra*, *Hemaster*, *Cucumaria*, *Asterias*, *Ophiosteira*, *Ophionotus*; HODGSON (141) and LENDENFELD (179).—German S. Pole Exped., n. spp. of *Urechinus*, *Pleurechinus*, and *Amphipneustes*; MORTENSEN (220); *Promachocr.* n. sp.; MINCKERT (213).

B. GEOLOGICAL.

(i) GENERAL.

“Les Echinides ne permettent généralement pas de déterminer l’âge des couches avec une grande précision”; DOUVILLE (83) p. 12.
 Palaeozoic to Cainozoic of Tarbes and Luz in French Pyrenees, lists of Echinoderms; CAREZ (46) pp. 798, 831, 858, 895, 935.—Sahara, list of specimens collected; FOUREAU (96) pp. 734, 735.

(ii) CAINOZOIC.

- a. **General**:—Japan, *Echinolampas*; YABE (336).—Patagonia, lists of *Ech.*; AMEGHINO (10) pp. 88, 162.
 b. **Pleistocene**:—Post-glacial *Ech.* tests in nodules with pseudogaylussite in R. Clyde; MACNAIR (205) p. 254.—Loch Fyne, *Echinus*, *Echinocardium*; NEWTON (225).—*Yoldia* Clay, Esbjerg, *Isolus*, *Ophioglypha*; NORDMANN (231).—C. d’Espichel, Portugal, *Echinus*, *Strongylocentrotus*; CHOFFAT (52).—(Lower), Otranto, *Antedon*, *Schizaster*, *Spatangus*; BASSANI (16).—Glacial “Leda clay,” Lynn, Essex Co., Mass., *Asterias*, *Asteracanthion*; SEARS (297) p. 369.—New Hebrides, Cinder Beds at Epi, *Brissus*, *Clypeaster*, *Laganum* (p. 414), Tasiriki on Santo, *Brissus* (p. 451); MAWSON (211).
 c. **Pleiocene**:—Mt. Gargano, *Cidaris*; CHECCHIA (48).—Djerf el Ihoudi, Morocco, *Rotuloidea*; BOISTEL (35).—Sables d’Edeghem, Belgium, *Cidaris*, VAN ERTBORN (325).
 d. **Meiocene**:—Carcare, Piedmont, *Clypeaster* n. sp.; AIRAGHI (8) p. 212.—Corsica, *Brissopsis*; AIRAGHI (6).—Angola, *Amphiope*; CHOFFAT (50) p. 43.—Africa, Loanda, *Amphiope* n. sp. (p. 133), Oran, *Echinolampas* n. sp. (p. 135); LORIOL (195).—New Zealand, Oamaru series, Black point, *Schizaster* (p. 521), Wharekuri basin, *Crin.* col. (p. 527), Mount Brown beds, *Cidaris* (p. 539), Port Hills, Nelson, *Cidaris* (p. 550); PARK (241).
 Upper.—Chalonnes (Maine-et-Loire) *Arbacia*; COUFFON (63).
 Middle.—S. Maria Tiberina, Umbria, *Pentaer.*, *Antedon*, *Cidaris*, *Arbacia*, *Echinocymus*, *Clypeaster*, *Pliolampas*, *Conolampas*, *Echinolampas*, and n. spp. of *Maretia* and *Pliolampas*; AIRAGHI (5).—Helvetician.—N. Sardinia, *Clypeaster*, *Echinolampas*, *Heterocyclus*, *Schizaster*, *Brissus*, *Hemaster*; AIRAGHI (8).—C. Pyla, Cyprus, *Clypeaster*; BATHER (20); BATE (18); BELLAMY (28) p. 27.
 Lower.—Upper Mediterranean of Osztroški-Vepor Gebirges, *Cidaris*,

Clypeaster, *Conoclypus*, *Echinocyamus*, *Goniaster*, *Scutella*, *Schizaster*, *Spatangus*; GAÁL (103).—Burdigalian,—Alpes-maritimes, n. spp. of *Brissoides*, *Mareta*; LAMBERT (173).—Isère, *Cidaris*, *Echinolampas*, *Spatangus*; SAVIN (286).

- e. **Oligocene** :—Stampian, Gironde, *Stenaster* n.g. et sp.; LAMBERT (171) p. 140.—Kasić, N. Dalmatia, *Porocidaris*; SCHUBERT (293) p. 165.
- f. **Eocene** :—Ostliche Kientaleralpen, Switzerland; GERBER (109).—Fumane, Grola, and Novale, Italy, *Echinanthus*, and n. spp. of *Conoclypeus*, *Schizaster*, *Cyclaster*, *Echinolampas*; AIRAGHI (6).—Verona, *Psammechinus excavatus*; LORIOL (195) p. 131.—Basin of R. Adour, chiefly Biarritz, horizons of *Cidaris*, *Clypeaster*, *Euspatangus*, *Scutella*, *Coptosoma*, *Pygorhynchus*, *Echinolampas*, *Ditremaster*, *Oriolampas*, *Macropneustes*, *Echinocyamus*, *Porocidaris*, *Pentacr.*, *Conocr.*; DOUVILLE (83).—Catalonia, n. spp. of *Coptosoma*, *Triplacidia*, *Echinanthus*, *Schizaster*, *Euspatangus*; LORIOL (195).—Cernica, Galicia, *Porocidaris*, *Conocr.*; HAWELKA (131).—Persia, list of *Ech.*; MORGAN (218).—Egypt,—*Euspatangus*, *Perispatangus* n. sg., *Heterospatangus* n. g., *Fourtaunia*, *Hypsospatangus*, *Megapneustes*, *Plagiopneustes* n. g., *Macropneustes*, *Plesiospatangus*; FOURTEAU (97) : *Rhabdocidaris* with n. sp., *Echinolampas*, *Amblypygus*, *Pericosmus*, *Ditremaster*, *Schizaster*, with n. sp., *Linthia*; FOURTAU (98).—Makamby Id., Madagascar, n. spp. of *Fibulina* n. g., *Fibularia*, and *Schizaster*; TORNQUIST (316).—Eocene ?, Somaliland, *Conoclypeus* ?, and from Garrasgoi Mt. *Schizaster* and *Linthia* ?; NEWTON (227) pp. 157, 173.—Eocene ?, *Ech.* in limestone, at Tokpli, Nigeria, compared with *Ech.* from Sokoto; AMMON (12) pp. 469, 471.—Corrio Bay, Victoria, *Scutellina*, *Antedon*; MULDER (222).—Lower Oamaru, Papakura, N. Zealand, *Schizaster*; CLARKE (56).

Upper.—W. Roumania, *Cidaris*, *Bourguetier*; MURGOCI (223).

Middle.—Lower Lutetian, Nummulitic, Hérault, list of *Ech.*; MIQUEL (215) : of Aude and Hérault, S. France, *Conocr.*, *Cidaris*, *Rhabdocidaris*, *Heteractis*, *Coptosoma*, *Micropsidia*, *Thylechinus*, *Baueria*, *Echinopsis*, *Rhabdopleurus*, *Hypsospatangus*, *Linthia*, *Schizaster*, *Prenaster*, *Eolampas*, *Amblypygus*, *Oriolampas*, *Cassidulus*, *Plagiopygus*, *Echinanthus*, *Conoclypeus*, and n. spp. of *Circopeltis*, *Brissoides*, *Macropneustes*, *Linthia*, *Schizaster*, *Ilarionia*, *Echinolampas*, *Porpitella*; DONCIEUX (81) : LAMBERT (171).—Nummulitic, Carinthia, *Cidaris*, *Echinanthus*, *Linthia*, *Echinolampas*, *Cyphosoma*, *Conoclypeus*, *Ilarionia*, *Pyrina*, *Pygorhynchus*, *Macropneustes*; REDLICH (266) pp. 342, 343.—Ostrovica, N. Dalmatia, *Micropsis*, *Leiopedina*, *Schizaster*, *Macropneustes*, *Trachypatagus*, *Euspatangus*, *Porocidaris*; SCHUBERT (293) p. 168.—Ljubač, N. Dalmatia, *Porocidaris*, *Echinanthus*, *Leiopedina*, *Conoclypus*, *Euspatangus*, *Schizaster*; SCHUBERT (294).—Fayum, Egypt, *Euspatangus*, *Echinolampas*, *Anisaster*, *Dictyopleurus*, *Schizaster*; BEADNELL (24).—Lutetian.—Kalfu-Tamaskie, Sokoto, *Rhabdocidaris* ?; NEWTON (226) p. 89 : *Plesiolampas*, *Linthia*, *Leiocidaris*, Baol near Dakar, *Echinolampas*; LAPPARENT (176).—Senegal, *Plagiopygus* n. sp.; LAMBERT in MEUNIER (212) : *Echinolampas* n. sp.; CHAUTARD (47) pp. 145, 151.—Nummulitic of Agost, Spain, *Balanocr.*, *Pentacr.*, *Podocidaris*, *radiole* (fig.), *Prenaster*, *Trachyaster*, *Conoclypeus*, *Oriolampas*, *Pliolampas*, *Echinolampas*, *Micropsis*; CISNEROS (54).

Lower.—Kharga Oasis, Egypt, *Conoclypeus*; BALL (14) p. 90.—Jebel Garra, W. of Assouan, *Rhynchopygus*; BALL (15) p. 30.

(iii) MESOZOIC.

- a. **General** :—Isère, annotated catalogue of *Ech.* from Infralias to Senonian, comprising n. spp. of *Pygaulus*, *Trematopygus*, *Clitopygus*, *Hemipedina*, *Cidaris*, *Plegiocidaris*, *Rhabdocidaris*; SAVIN (286).

- b. **Cretaceous** :—Unterengadin, Crinoid limestones, *Pentacr.*; PAULCKE (243) pp. 271-274.—Near Moedling, Austria, *Nucleolites*, *Galerites*; TOULA (318) p. 321.—Tibet, *Hemiaster*, *Hemipneustes*; HAYDEN (132) pp. 164, 165.—N. America, *Crin.* 21 spp., *Ast.* 1 sp., and *Cassidulus*; JOHNSON (146).—Cerro Cazador, Patagonia, *Astropecten* n. sp.; LORIOL (195) p. 141.
1. **Upper** :—Chalk of Rochester district, Kent, locc. of Echinoderms; DIBLEY (76).—England, *Mitraster*, *Nymphaster* n. sp., *Pentagonaster* n. spp., *Pentaceros* n. spp.; SPENCER (305).—Sénonais (l'Yonne) various *Micraster* and *Marsupites*; LAMBERT (169).—Bohemia, lists of *Ech.*, *Ast.*, *Crin.*; ZAHALKA (348) pp. 159, 165, 168, 169.—Couches rouges de Leysin, Switzerland, *Echinocorys*, *Micraster*, *Cardiaster*, *Pentacr.*, *Balanocr.*; ROESSINGER (278).—E. Balkans, *Entrochus insignis* n. sp., and columnals cf. *Encriinus*, *Apiocr.* and *Pentacr.* [now known to be Trias] (p. 347), *Galerites*, *Ananchytes* (p. 362), *Cidaris* (p. 364); TOULA (317) p. 392.—Gabun, W. Africa, *Echinobrissus* n. sp.; KOSSMAT (167).—(?), Telemisi valley at the Tosaye bend, R. Niger, *Linthia*? collected by Lieut. Desplagnes; LAPPARENT (177).—Roca, Patagonia, *Linthia*; WILCKENS (341) p. 139.
- Danian,—Persia, locc. of *Ech.* and *Balanocr.*; MORGAN (218).—Kharga Oasis, Egypt, *Ananchytes*; BALL (14) p. 88.—Kurkur Oasis, W. of Assouan, *Ananchytes*, *Pentacr.*; BALL (15) p. 32.—(Upper), Kom Ombo plain, Nile Valley, *Echinocorys*; BEADNELL (23) p. 668.—Fox Hills beds, Lander, Wyo., *Pentagonaster* n. sp.; WELLER (334).
- Senonian,—Var, *Cidaris*; SAVIN (286) p. 307.—L'Yonne, spp. of *Gauthieria*, *Micraster*, and n. spp. of *Cidaris* and *Salenia*; VALETTE (324).—Presqu'ile St Jean (Alpes maritimes) *Micraster arenatus*; MAURY (210) p. 587.—Ekaterinoslav, *Cidaris*, *Tetragramma*, *Echinoconus*, *Holaster*, *Ananchytes*; FAVRE (91).—Abu Roach, Egypt, *Echinobrissus*; BEADNELL (22) pp. 19, 27.
- Upper Senonian,—Phosphatic Chalk, Taplow, *Marsupites*, *Bourgueticr.*, *Uintacr.*, *Cidaris*, *Echinocorys*, *Galerites*, *Micraster*, *Cardiaster*, *Pseudodiadema*, *Pentagonaster*, *Metopaster*, *Oreaster*; WHITE (338).—*Marsupites* zone, Westphalia, *Marsupites*, *Uintacr.*, *Bourgueticr.*, *Pentacr.*, *Stellaster*, *Zeuglopleurus*, *Cassidulus*, *Pygurus*, *Cardiaster*, *Micraster*, *Catopygus*; WEGNER (333).—Pomerania, *Ananchytes*, *Cardiaster*, *Echinoconus*; DEECKE (69) pp. 15, 17.—Dakar, Senegal, *Physaster*; PERON (247).—Uenzamba beds, Pondoland, *Hemiaster*, *Holaster*, *Cassidulus*; ROGERS (279) pp. 324, 326.
- Lower Senonian,—Seewerkalk, Glarner Alp, *Echinocorys*; ROTHEPLETZ (281).—Santonian, Martigues, n. spp. *Goniopygus*, *Micropsis*; SAVIN (286).—Santonian, Abu Roach, Egypt, *Cyphosoma*, *Goniopygus*, *Catopygus*, *Hemiaster*, *Anthenea*, *Nardoa*; FOURTAU (98).
- Senonian to Turonian,—Wiltshire, distrib. of zones, *Holaster*, *Micraster*, *Echinocorys*, *Galerites*, *Marsupites*; JUKES-BROWNE (150) pp. 36-39.—N.E. Surrey, *Bourgueticr.*, *Marsupites*, *Uintacr.*, *Pentacr.*, *Cidaris*, *Cyphosoma*, *Salenia*, *Echinocorys*, *Echinoconus*, *Discoidea*, *Micraster*, *Hemiaster*, *Holaster*; YOUNG (347).—Marlow, Bucks, *Cidaris*, *Galerites*, *Micraster*, *Echinocorys*, *Insulaster*, *Holaster*, *Bourgueticr.*; TREACHER (319).—Douai, *Micraster*, *Echinocorys*, *Echinoconus*; GOSSELET (116) pp. 18, 20, 21, 42.
- Turonian,—Presqu'ile St Jean (Alpes Maritimes) *Micraster leskei*; MAURY (210) p. 586.—Pomerania, *Bourgueticr.* &c.; DEECKE (69) p. 19.—Poland, *Cidaris*, *Discoidea*, *Cardiaster*, *Holaster*, *Galerites*, *Caratomus*, *Ananchites*, *Micraster*; SIEMIRADZKI (301).—Oppeln, Silesia, *Micraster*, *Ananchytes*; FLEGEL (94).—Heuscheuergebirge, Silesia, *Cardiaster*, *Micraster*; FLEGEL (95).—Persia, locc. and list

- of *Ech.*; MORGAN (218).—Abu Roach, Egypt, *Cyphosoma*, *Gonio-pygus*; FOURTAU (98).
- Cenomanian,—Chloritic Marl, Wiltshire, *Discoidea*, *Pseudodiadema*; JUKES-BROWNE (150) p. 29.—Aude, *Plegiocidaris*; SAVIN (286) p. 314.—Calabria, *Epiaster*, *Hemaster*; DE STEFANO (75).—(Bellasián), Ericeira, Portugal, *Hemaster*; CHOIFFAT (51) p. 32.—Misburg, Hannover, *Pseudodiadema*, *Peltastes*, *Stereocidaris*; WOLLEMAN (343).—Glarner Alp, *Cidaris*, *Holaster*; ROTHPLETZ (281).—Zone of *Actinocamax plenus*, E. Bohemia, *Cidaris*; PETRASCHECK (254) p. 425.—Persia, locc. of *Ech.*; MORGAN (218).—Abu Roach, Egypt, *Hemaster*, *Cyphosoma*, and other *Ech.*; BEADNELL (22) pp. 19, 21, 26, 32.
- Albian,—near Escragnolles and Nice, *Cidaris*, *Typocidaris*, *Peltastes*, *Diplopodia*, *Polydiadema*, *Discoides*, *Conulus*, *Pygaulus*, *Catopygus*, *Holaster*, *Epiaster*, *Toxaster*, *Hemaster*, *Tylocidaris*, *Cardiopelta*; HITZEL (140).—Near Grenoble, *Stereocidaris*, *Cidaris*, *Rhabdocidaris*, *Discoidea*; PAQUIER (238) p. 134.—Angola, *Salenia*, *Pygurus*; CHOIFFAT (50) p. 56.—Pomerania, *Ech.* jaws, *Asterias*, *Pentacr.*, *Hol.* (*Uncinulina*); HUCKE (143) p. 166.—Korycaner Quader, E. Bohemia, *Pygurus*, *Catopygus*; PETRASCHECK (254) p. 416.—Persia, locc. of *Ech.*; MORGAN (218).
- Upper Greensand,—England, *Comptonia*, *Astropecten*; SPENCER (305).—Wiltshire, list of *Ech.*; DAVEY (67).—Zone of *Pecten asper*, near Devizes, *Holaster*, *Cardiaster*, *Catopygus*; JUKES-BROWNE (150) p. 25.
- Vraconian?, Angola, *Rhabdocidaris* (pp. 48, 58), *Cidaris*, *Isaster*, *Epiaster*, *Holaster* (p. 58), *Stigmatopygus* (p. 59); CHOIFFAT (50).
2. Lower:—Murcia, *Pseudocidaris*, *Heteraster*; CISNEROS (53).—Capri, *Apioer*, *Rhabdocidaris* n. sp., *Hemicidaris* n. sp., *Orthopsis*; AIRAGHI (7).—E. Balkans, *Toxaster* (p. 341), *Catopygus* (p. 359), *Pseudocidaris* (p. 360); TOULA (317) p. 393.—W. Morocco, *Toxaster*, *Pseudodiadema*; BRIVES (42).—Near Malone Mt., Texas, *Enallaster*, *Epiaster*; STANTON in CRAGIN (64) p. 31.
- Aptian,—Gard, France, *Miotoxaster*, *Diplopodia*; LAMBERT (170) p. 846: *Miotoxaster*, *Phyllobrissus*, *Hemidiadema*; PELLAT (245): (Lower), Laval St. Roman, *Actinometra vagnasensis*, *Miotoxaster collegnoi*; PELLAT (244).—L'Yonne and l'Aube, *Cidaris*, *Salenia*, *Peltastes*, *Pseudodiadema*, *Toxaster*; PERON (248).—Portugal, *Pseudodiadema* n. sp., *Goniopygus*; LORIOL (195) p. 136: C. d'Espichel, *Enallaster*; CHOIFFAT (51) pp. 12, 15.—Vierwaldstättersee, *Toxaster* (p. 5), *Cidaris* (p. 6); PANNEKOEK (237).—Persia, locc. of *Ech.*; MORGAN (218).
- Urgonian,—Portugal, *Toxaster* n. sp.; LORIOL (195) p. 138.—Barrémian, Gard, France, *Holectypus*, *Pygaulus*, *Phyllobrissus*, *Holaster*, *Toxaster*, and n. sp. of *Astrolampus*; LAMBERT (170): *Holectypus*, *Pygaulus*, *Astrolampus*, *Phyllobrissus*, *Holaster*, *Toxaster*, *Miotoxaster*; SAYN (287): Royans, *Toxaster*; SAYN (286a).—Barremian, Portugal, C. d'Espichel, *Pyrina*, *Goniopygus*, *Orthopsis*, *Rhabdocidaris*, *Pseudocidaris*, *Cidaris*, *Codiopsis*, *Circopeltis*, *Pseudodiadema* (pp. 9-11), Ericeira, *Pseudocidaris*, *Pseudodiadema*, *Toxaster*, *Miotoxaster* (pp. 27-30); CHOIFFAT (51).—Lower Urgonian, Capri, *Cidaris*, *Pseudocidaris*, *Salenia*; AIRAGHI (7).
- Hauterivian,—Gard, France, *Toxaster*; LAMBERT (170) p. 846.—C. d'Espichel, Portugal, *Pygurus*, *Botryopygus*, *Rhabdocidaris*, *Apioer*. (p. 7), *Holaster* (p. 8); CHOIFFAT (51).
- Neoocomian,—Sponge-gravels of Faringdon, *Ech.*; DAVEY (66) p. 31 & (67).—Basses Alpes, *Aulacocidaris* n. sp.; LORIOL (195) p. 140.—Mt. Salève, Haute Savoie, *Botriopygus*; op. cit. p. 143.—

- (Upper), Fuet, Bernese Jura, *Pyrina*; ROLLIER (280).—(Lower), Capri, *Cidaris*, *Rhabdocidaris*, *Pseudocidaris*; AIRAGHI (7).—Uitenhage Beds, Zwartkops R., Cape Colony, *Cidaris*; ROGERS (279) p. 294.—Glarner Alp, Upper Valangian, *Cidaris*, *Pygurus* (p. 70), Berriasian, *Cidaris* (p. 57); ROTHPLETZ (281).
- c. **Jurassic**:—Tibet, *Crin.*; HAYDEN (132) p. 166.—Oxfordian to Bajocian near Poitiers, *Ech.*; WELSCH (336).
1. **Upper**:—Pebble with *Collyrites* in Miocene of Langogne, Lozère; KILIAN (157).—Tatahouine, Tunis, *Monodiadema*, *Pygurus*, *Hemicidaris*, *Millerior*; PERVINGUIÈRE (250).—Dahar Mts., S. Tunis, *Pygurus*, *Acrosalenia*, *Monodiadema*, *Acropeltis*, *Phyllobrissus*; DOUVILLE (84).—Hakim, Somaliland, *Cidaris*? and a Spatangid [?]; DACQUÉ (65) p. 124.—Malone formation, Texas, *Holectypus*, *Pygurus*; CRAGIN (64).
- Portlandian** (=Tithonian):—Murcia, *Collyrites*, *Metaporhinus*; CISNEROS (53).—Glarner Alp, *Cidaris*, *Hemicidaris*; ROTHPLETZ (281) p. 55.—Stramberger Kalk, lists of *Ech.* and *Crin.* from Stramberg and Nesselsdorf, and in exotic blocks, with discussion of relations (268) pp. 216, 280, 290, 361, 364, 367, 369, 372: of Stramberg, *Ast.*, *Thiolliericr.*, *Diplocidaris*, and n. spp. of *Cyrtocer.*, *Cidaris*, and *Pseudosaccocoma* n. g. (269): Moravia,—various locc., *Thiolliericr.*, *Cidaris* (270, 271); Vlèovic, *Balanocr.* (272): Skalitz, *Metaporhinus*, *Pseudodiadema*, *Cidaris*, *Pseudosaccocoma* (273): near Kopřivnice, *Thiolliericr.* (274); REMEŠ.—(Upper), Capri, *Salenia*, *Pseudocidaris*, *Rhabdocidaris*, *Cidaris*, *Apocr.*; PARONA (242).—Préalpes maritimes, *Cidaris*, *Acrocidaris*, *Plegiocidaris*, *Acropeltis*, *Glypticus*, *Stomechinus*, *Pygurus*, *Pedina*; KILIAN (156) p. 818.
- Upper Kimmeridgian and base of Portlandian, ibid. *Cidaris*, *Plegiocidaris*, *Glypticus*, *Acropeltis*, *Cardiopeltis*, *Pedina*, *Collyrites*, *Balanocr.*; KILIAN (156) pp. 806, 807.
- Kimmeridgian:—Aare-Thal &c., Switzerland, *Cidaris*, *Rhabdocidaris*, *Collyrites*, *Balanocr.*, Wangener Schichten, *Cidaris*, *Crenularis* Schichten, *Hemicidaris*, *Stomechinus*, *Collyrites*, *Rhabdocidaris*; MUEHLBERG (221) pp. 506–508.—Somaliland, *Pseudocidaris*; DACQUÉ (65).
- Sequanian or Kimmeridgian of Tatahouine, Tunis, *Acrosalenia*, *Acropeltis*, *Pygurus*, and n. spp. of *Pseudocidaris*, *Monodiadema*, *Hologlyptus*, *Phyllobrissus*, *Pygurus*; LAMBERT (172).
- Sequanian:—Préalpes maritimes, *Collyrites*, *Pentacr.*; KILIAN (156) p. 792.—[Corallian?] “calcaire coralligène,” Mt. Salève, Haute Savoie, *Echinobrissus* n. sp.; LORIOL (195).—Upper Astartian, St. Antonin, Central France, *Pseudodiadema*, *Pygurus*, *Hemicidaris*, *Cidaris*, *Rhabdocidaris*, *Acrosalenia*, *Apocr.*; THÉVENIN (313) p. 87.—Akanthicuskalk, Unterengadin, *Crin.*, *Ech.*; SCHILLER (290) p. 131.
2. **Middle**:—Oxfordian:—Of Ardèche, *Eosalenia* n. g. et sp.; SAVIN (286) p. 311.—Préalpes maritimes, *Collyrites*, *Cidaris*, *Rhabdocidaris*, *Plegiocidaris*, *Balanocr.*; KILIAN (156) p. 781.—Birmensdorfer Schichten,—Aarethal, Switzerland, *Cidaris*, *Eugeniacr.*; MUEHLBERG (221) pp. 506–508: Glarner Alp, *Cidaris*, *Rhabdocidaris*, *Pseudodiadema*; ROTHPLETZ (281) pp. 50, 51.—Rauracian,—Presquile St. Jean (Alpes Maritimes), *Glypticus*, *Diplocidaris*, *Cidaris*, *Rhabdocidaris*, *Diplopodia*, *Pseudodiadema*, *Acrocidaris*, *Apocr.*; MAURY (210) p. 583.—Mt. Salève, Haute Savoie, *Diplopodia*, *Stomechinus*; LORIOL (195).—Lower Rauracian of Champlitte near Gray, France, 52 spp. *Ech.*, *Collyrites*, *Dysaster*, *Pygurus*, *Echinobrissus*, *Hyboctypus*, *Pyrina*, *Holectypus*, *Pygaster*, *Cidaris*, *Rhabdo-*,

- Diplo-*, *Pseudo-*, *Hemi-*, *Acro-cidaris*, *Pseudodiadema*, *Glypticus*, *Magnosia*, *Pedina*, *Stomechinus*, 34 spp., *Crin.*, *Eugeniacr.*, *Apocr.*, *Millericr.*, *Pentacr.*, *Extracr.*, *Antedon*, all with locc. and synn.; MAIRE (206).—Lower Oxfordian,—Bernese Jura, comparison of faunas at Graity and Rouges-Terres, *Cidaris*, *Pseudodiadema*, *Asterias*, *Balanocr.*; AEBERHARDT (1).—La Fauchille, S. Jura, *Cidaris*, *Pseudodiadema*; LEE (178).
3. Lower,—Cook inlet, Alaska, *Pentacr.*; STANTON (307) p. 396.—Franche-Comté, lists of *Ech.*, *Ast.*, *Crin.*; GIRARDOT (112) pp. 179-194, 269, 305, 352, 382, 392.
- Bathonian:—near Macon, *Ech.* and *Crin.* under zones; LISSAJOUS (183).—Hte. Saone, *Hemicidaris* n. sp.; SAVIN (286) p. 310.—Préalpes maritimes, *Rhabdocidaris*, *Gymnocidaris*, *Pseudodiadema*, *Stomechinus*, *Pedina*, *Pygurus*, *Acrosalenia*; KILIAN (156) p. 760.—Nurra, Sardinia, *Pentacr.*, *Cidaris*; DENINGER (73).
- Bajocian:—near Macon, *Ech.* and *Crin.* under zones; LISSAJOUS (183).—Préalpes maritimes, *Cidaris*, *Plegiocidaris*, *Diplopodia*, *Stomechinus*, *Pentacr.*; KILIAN (156) p. 743.—Near Bruniquel, Central France, *Cidaris*, *Stomechinus*, *Hemicidaris*; THÉVENIN (313) p. 76.—Glarner Alp, *Cidaris*, *Collyrites*; ROTHPLETZ (281) pp. 35, 38.—(Lower), *Opalinus* zone, Luxembourg, *Astropecten*, *Pentacr.*; BENECKE (29) pp. 75, 76.
- (e & d) Sinemurian (p. 815), Bajocian (pp. 832, 834), Bathonian (p. 842), Callovian (p. 844), Oxfordian (pp. 848, 849), of Poitou, *Ech.* and *Crin.*; WELSCH (335).
- d. **Lias**:—of Franche-Comté, lists of *Ech.* and *Crin.*; GIRARDOT (112) pp. 46, 245, 382.—near Moedling, Austria, *Disaster* (p. 272), *Pentacr.* (p. 322); TOULA (318).—Bulgaria, *Pentacr.*, *Extracr.*; BAKALOW (13).—E. Balkans, *Pentacr.*; TOULA (317) pp. 359, 394.—Lias, Steinsberger Kalk, Unterengadin, *Pentacr.*, *Apocr.*, *Diademopsis*; SCHILLER (290) p. 126.
- Upper, or Toarcian:—(Upper), St. Antonin, Central France, *Galeropygus*; THÉVENIN (313) pp. 63, 72.
- Middle, or Pliensbachian (=Charmouthian):—Glarner Alp, *Pentacr.*; ROTHPLETZ (281) p. 29.—Italy, *Loriolella* n. g. *Ech.*; FUCINI (102).—Rocchetta, Italy, n. spp. of *Diademopsis* and *Mesodiadema*; AIRAGHI (6).
- Lower, or Sinemurian:—Antirhaeticum, Unterengadin, *Pentacr.*; PAULCKE (243) p. 269.—Palermo, *Pentacr.*, *Diademopsis*, *Asterias*; SCALIA (288).
- Infralias of Ardèche, *Plegiocidaris*; SAVIN (286) p. 312.
- Rhaetic, Pendoylan, Glamorganshire, *Acrosalenia* ?, with note on Echinoderms of *Avicula contorta* zone; RICHARDSON (277) p. 405.
- e. **Trias**:—See also III, B, iii, b; TOULA (317).—Bulgaria, *Cidaris*, *Pentacr.*, *Encrinus*, *Entrochus*; BAKALOW (13).
- Upper:—Pachycardientuffe, Seiseralpe, *Encrinus*, *Cidaris*; BLASCHKE (32).—? Upper, New Zealand,—Shaw B., Mt. Potts, and Well's Creek, Nelson, *Pentacr.*; PARK (239) pp. 383, 389, 398: Wairoa gorge, Sellens run, and Eighty-eight Valley, *Pentacr.*; PARK (240) pp. 438, 439.
- Middle:—Wengen Beds, Montenegro, *Encr.*, *Cidaris*; MARTELLI (209).—Muschelkalk,—Upper Silesia, *Dadocr.*, *Encr.*; WYSOGÓRSKI (345).—Gross Läger, Unterengadin, *Dadocr.*; SCHILLER (290) p. 118.—Lower Muschelkalk, Pfalzburg, Elsass, *Gidaris* (p. 105), *Pentacr.* (p. 111); SCHUMACHER (295).—Werfener Schichten, near Moedling, Austria, *Pentacr.*; TOULA (318) p. 286.

(iv) PALAEOZOIC.

- a. General :—Vacant.
- b. Permian :—Vacant.
- c. Permo-Carboniferous :—Vacant.
- d. Upper Carboniferous :—Coal measures—marine band above [i.e. below] the Gin Mine Coal, Nettlebank Sinking, Smallthorne, N. Staffs., *Archaeocidaris*, *Crin.*; HIND (138) p. 121 and (139) p. 235; WARD (330) pp. 294, 320, 343; STOBBS (308) pp. 502, 529, 543, 547, pl. xxxv.—Spain, *Archaeocidaris*, *Poteriocr.*, *Mespilocr.*, *Erisocr.*, *Platyocr.*, *Cyathocr.*, *Euryocr.*; MALLADA (208) passim.—Kessler Limestone of Arkansas = Pentremital Limest.; Girty (113) p. 9.—Bangor Limestone near Cole City, Georgia, *Pentremites*; McCALLIE (203).
- e. Lower Carboniferous :—Carbonif. Limest., Ticknall and Breedon Cloud, S. Derbyshire, list of *Crin.* and *Ech.*; STRANGWAYS (310) p. 14: near Cefn, S. Wales, *Archaeocidaris*, *Crin.*; HIND (139) p. 237.—Cork, list of *Crin.* and *Palaechinus*; LAMPLUGH (174) pp. 26, 29.—S. Oran, Algeria, *Poteriocr.* and *Actinoocr.* columnals; THÉVENIN (314). Erg of Issaouan, Algerian Sahara, *Poteriocr.*, *Rhodocr.*; HAUG (130) pp. 793, 795: *Poteriocr.*; FOUREAU (96) p. 574.
- Chester group,—Cypress Sandst., W. Kentucky, *Talarocr.*, *Pentremites* (p. 54), Ste. Genevieve Limest., W. Kentucky, *Platyocr.*, *Batoocr.*, *Pentremites*, *Mesoblastus* (pp. 42, 47), Kaskaskia Limest. = Birdsville and Tribune, W. Kentucky, *Agassizocr.*, *Pterotoocr.*, *Pentremites* n. spp. (pp. 58, 61, 63); ULRICH (321).
- St. Louis Limest., W. Kentucky, *Pentremites* n. sp., *Melonites*, *Archaeocidaris*, *Dichocr.* (p. 33), Spergen Limest., W. Kentucky, *Pentremites* (p. 30); ULRICH (321).
- Missouri, Burlington age, *Cyathocr.* n. sp., *Eretmocr.*, *Cryptoblastus*, *Schizoblastus*, *Lophoblastus* n. sp., *Orophocr.*, *Pentrémites*, *Metablastus*, *Mesoblastus*, *Codaster* n. sp.; ROWLEY (282).—Waverly age, Rocky Mts., S. W. Montana, *Cyathocr.*, *Taxocr.*, *Actinocr.*, *Platyocr.*, *Rhodocr.*, *Poteriocr.* (pp. 421–423), Madison Lst., Bridger Mts., Montana, *Poteriocr.*, *Platyocr.*, *Rhodocr.* (see Miller, 234 & 235 Zool. Rec. 1897) (p. 417); DOUGLASS (82).
- f. Devonian :—Spain, *Pradocr.*, *Entrochus*, *Cyathocr.*, *Hexacr.*, *Rhodocr.*, *Pentremitidea*, *Phaenoschisma*, *Troostocr.*; MALLADA (208) p. 6 et passim.—Tassili and Erg of Issaouan, Sahara, *Melocr.*; HAUG (130) p. 766.—Columbus Lst., Ohio, *Nucleocr.*; PROSSER (261).
- Upper Devonian :—Portage beds, N. York, *Maragnier* n. g. et sp., *Cosmocr.*; WHITFIELD (339): *Cyathocr.*, *Scytalocr.*, *Maragnier*; CLARKE (58).
- Middle :—Moravia, *Actinocr.*, *Protocidaris*; SMYČKA (303).—Sierżawy-Schichten and Crinoiden-Kalk, Poland, *Haploocr.*; SOBOLEW (304) p. 68.
- Lower :—in Cornwall, England, *Sympterura* n. g. et sp.; BATHER (21).—Meadfoot beds, S. Devonsh. *Hexacr.* and other Crin. remains; USSHER (323).—Coblenian Dachschiefer, various locc. near Rüdesheim, *Acanthocr.*, *Cyathocr.*; LEPPA (180) p. 28: at Caub. *Acanthocr.*, *Cyathocr.*; LEPPA (181) p. 16.
- Helderbergian, New York, *Anomalocystis*, *Lepocr.*, *Homocr.*, *Edriocr.*, *Melocr.*, *Cordylocr.*, *Aspidocr.*, *Brachioocr.*; n. spp. of *Thysanocr.*, *Mariaer.*, *Ichthyocr.*; TALBOT (312).—Becraft limestone, Trilobite Mt., N.Y., *Edriocr.*; SHIMER (300).—Silurian? Lower Helderberg, Virginia, *Aspidocr.*; WILLIAMS (342).

- g. **Silurian** :—Spain, *Scyphocr.*; MALLADA (207) p. 294 & (208) p. 61.—Niagara Limest., Clinton co., Iowa, *Caryocr.* (p. 399), *Siphonocr.*, *Saccoer.*, *Ichthyocr.* (p. 402); UDDEN (320).—Silurian, Yass, Victoria, *Cyathocrinus*? and other Crin. columnals; SHEARSBY (298).
- h. **Ordovician** :—Spain, *Echinospaera*; MALLADA (207) p. 307.—W. of Rebouc, Pyrenees, *Echinospaera*, BRESSON (41) p. 91.—(Upper) Canigou, Pyrénées-orient., *Corylocr.*, *Caryocystis*, *Echinospaera*; DEPERET (74).—Jewe beds, D1, *Pentacr.*; JONKER (148) pp. 138–141. —d 2 of Rennvit, Bohemia, *Camarocr.*; FRITSCH (100). Trenton of Pakenham, Ont., *Agelacr.*, *Glyptocr.*, *Pleurocystis*; AMI (11) p. 84j.—Chazy Limestone, Lake Champlain region, *Malocystis*, *Glyptocystis*, *Palaeocystis*; RAYMOND (265) : n. spp. of *Malocystis*, *Lyriocr.*?, *Rhaphanocr.*?, *Carabocr.*; HUDSON (144).—Simpson formation, Arbuckle Mts., U.S.A., *Glyptocystis*, *Platycystis*, *Amygdalocystis*, *Archaeocr.* (pp. 24, 25), Viola Limest., ibid. *Cyst.* columnals (p. 27); TAFF (311).
- k. **Cambrian** :—Spain, *Trochocystis*, MALLADA (207) pp. 27, 66.—Coulouma, Montagne Noire, Aude, *Eocystis*, *Trochocystis*, and n. sp. of *Stromatocystis*; MIQUEL (216).

IV. SYSTEMATIC†.

(A.)—ECHINODERMA IN GENERAL.

Chapters on “die spezifische Bestimmung” and “die Artwandlung”; PRZIBRAM (262).

Echinodera divided into *Pelmatozoa* (*Crin.*, *Cyst.*, *Blast.*) and *Echinozoa* (*Ast.*, *Oph.*, *Ech.*, *Hol.*); GROBBEN (124) p. 654.

(B.)—HOLOTHURIOIDEA.

- Allopatides* n. g. of *Synallactidae*, with genotype *A. dendroides* n. sp., 669 fm. S.W. of Andaman Is.; KOEHLER & VANNEY (164) p. 49, pls. iii, xi.
- Amphideima* n. g. of *Deimatidae*, with genotype *A. investigatoris* n. sp., 250 fm., Andaman Is.; KOEHLER & VANNEY (164) p. 59, pls. iv, xii.
- Amphigymnas multipes* Walsh, genotype, syn. of *Synallactes wood-masoni* (q.v.); KOEHLER & VANNEY (164).
- Anapta* (?) *dubiosa* n. sp., 410 fm., B. of Bengal; KOEHLER & VANNEY (164) p. 109, pl. xv.
- Ankyroderma brevicaudatum* n. sp., 185 fm., Andaman Is. (p. 99, pl. xv), *A. contortum* n. sp., 753 fm., B. of Bengal, Kistna coast (p. 100, pl. xiv), *A. intermediate* n. sp., 637–800 fm., B. of Bengal, Kistna Coast, and Stat. 199, 8° 40' N., 81° 27' 35" E. [this is in the middle of Ceylon] (p. 102, pl. xv), *A. musculus*, incl. *A. spinosum* Ludw., variations in length (p. 95), n. var. *acutum*, 410–947 fm., various locc. B. of

† A dagger prefixed to the name of a species indicates that it is fossil; prefixed to the name of the author, it denotes that the reference is to the species in a fossil state; prefixed to the name of a genus, it indicates that all species in the same paragraph are fossil, and the † is therefore not repeated before each name. The abbreviations *l. c.* and *op. cit.* refer only to the place or work quoted immediately before.

A name and reference quoted without further statement [*e.g.* *Caudina arenata*; CLARK (55) p. 12] indicate that the quoted author's statement refers to a question of no systematic importance. Further information can usually be gleaned from the cross-references under TITLES.

Bengal and Arabian Sea (p. 97, pl. xiv), *n. var. undulatum*, 185 fm., Andaman Is., 480 fm. off S.W. Ceylon (p. 99, pl. xv), *A. polymorphum n. sp.*, 690–920 fm., N. Coromandel Coast (p. 103, pl. xiv); KOEHLER & VANNEY (164).

Apodogaster Walsh, discussed, *A. alcocki*, added notes; KOEHLER & VANNEY (164) p. 66, pls. v, xii.

Aspidochirota n. fam. see *Gephyrothuriidae*.

Bathyplotes assimilis n. sp., 360 fm., S. of Malabar (p. 25, pls. iii, x), *B. crenulatus* n. sp., 405 fm., Andaman Is. (p. 23, pl. x); KOEHLER & VANNEY (164). *B. natans*; NORDGAARD (230) pp. 161, 241, *B. papillosum* n. sp., 556–595 fm., W. of Ceylon (p. 28, pl. x), *B. profundus* n. sp., 1644 fm., B. of Bengal (p. 22, pls. iv, x), *B. variabilis* n. sp., 498–726 fm., Palk Str., N. Ceylon (p. 26, pls. v, x); KOEHLER & VANNEY (164).

Bathyzona n. g. of *Synallactidae*, with genotype *B. incerta* n. sp., 1140 fm., N. of Laccadives; KOEHLER & VANNEY (164) p. 53, pls. i, xi.

Benthodytes glutinosa, added notes; KOEHLER & VANNEY (164) p. 72, pl. xii. *B. ianthina*; RICHARD (276) p. 3. *B. sanguinolenta* (p. 72), *B. superbus* n. sp., 1506 fm., N. of Arabian Sea (p. 74, pls. vii, xii); KOEHLER & VANNEY (164).

Benthophyces n. g. of *Deimatidae* (p. 64), genotype *B. fragilis* n. sp., 740 fm., N. of Malabar Coast (p. 65, pls. viii, xii); KOEHLER & VANNEY (164).

Benthothuria discussed, rediagnosed (p. 40), *B. cristatus* [sic] n. sp., 869–913 fm., N.W. of Nicobar Is. (p. 42, pl. i), *B. distortus* [sic] n. sp., 912–931 fm., N. Malabar Coast (p. 43, pl. iii), *B. fusiformis* (p. 41); KOEHLER & VANNEY (164).

Caudina arenata; CLARK (55); p. 12: HERTWIG (136). *C. coriacea* n. var., *brevicauda*, New Zealand (pp. 66, 121, fig.), *C. pigmentosa* redescr. and now first figd., wine-red concentric sclerites (p. 69, pl. iv and figg.), *C. pulchella* n. sp., New Zealand (p. 117, pl. v), *C. rugosa*, redescr. and now first figd. (p. 66, pl. iv); PERRIER (249).

Chiridota chiaji is either *Labidoplax digitata* or *L. thomsoni*; ÖSTERGREN (235) p. clxii. *C. contorta* distinguished from *C. studeri*; PERRIER (249) p. 77. *C. laevis*; CLARK (55) p. 13. *C. marenzelleri*, redescr. and now first figd.; PERRIER (249) p. 79, pl. iv. *C. pellucida*; SCHMITT (292) p. 248. *C. pinnata* is Mediterranean form of *Synapta inhaerens*; ÖSTERGREN (235) p. clxii. *C. pisani*; PERRIER (249) p. 79.

Chondrocloea striata n. var. *incurvata*, Somali coast; VANNEY (326) p. 190. *Colochirus*, discussed and restricted (p. 107), no Antarctic spp. (p. 111); PERRIER (249). *C. brevidentis*, vide sub *Cucumaria*. *C. doliolum*? juv. (p. 189), *C. gravieri* n. sp., Somali coast, 20 m. (p. 188); VANNEY (326). *C. lacazei* distinguished from *Cucumaria montagui*; NORMAN (232) p. 359.

Cucumaria, discussed; PERRIER (249) p. 108. *C. sp.*; GRAVE (118). *C. alba* (p. 85) and *C. brevidentis* (Hutton sub *Thyone*) (p. 110), added notes; PERRIER (249). *C. calcigera*; CLARK (55) p. 9. *C. elongata*, descr., with young, distinguished from "C. pentactes Linn." Bell; KEMP (152) p. 177, pl. xxxv. *C. filholi*, redescr. and distinguished from *C. alba*; PERRIER (249) p. 88, pl. v. *C. frondosa*; CLARK (55) p. 9: HØRRING (142) pp. 185, 189: NORDGAARD (230) p. 161: SCHMIDT (291) p. 18. *C. hispida*; KEMP (152) p. 185: NORDGAARD (230) pp. 161, 241. *C. huttoni*, added notes; PERRIER (249) p. 93. *C. hyndmani*; KEMP (152) p. 185, 205: incl. spicules figd. as *C. planci* by Bell; NORMAN (232) p. 356. *C. kerguelensis* (p. 29), *C. laevigata*, added notes, distrib. (p. 22), *C. leonina*, distrib. (p. 24), disposition of podia, sclerites, relation to *C. koellikeri* (p. 26, pl. i); PERRIER (249). *C. minuta*; CLARK (55) p. 9. *C. montagui* Fleming was based on

Montagu's *C. pentactes* var. and therefore incl. *C. normani* Pace, spicules figd., young incl. *Holothuria decollata* Leach MS. and "C. saxicola" Pace 1904; NORMAN (232). *C. ocnoides*, descriptions by DENDY & REIFFEN harmonised, not related to Molpadidae (p. 96, pls. i, v), *C. parva*, podia and sclerites (p. 29, pls. ii, iii); PERRIER (249). *C. planici*; KEMP (152) p. 178; NOBRE (229) p. 132: spicules, correction of Bell, B. M. Cat. Brit. Echin.; NORMAN (232) p. 356. *C. pulcherrima*; CLARK (55) p. 9. *C. tabulifera*, redescr., now first figd.; PERRIER (249) p. 17, pls. i, iii. *C. transitoria* n. sp., Somali coast, 20 m.; VANNEY (326) p. 187.

Deima blakei, variations; KOEHLER & VANNEY (164) p. 55, pl. xi.

Deimatidae n. gg., see *Amphideima*, *Benthophyces*.

Dendrothuria n. g. of *Synallactidae* (p. 44) perh. comprises *Pelopatides megalopharynx*, genotype *D. similis* n. sp., 1000 fm. E. of Laccadives (p. 45, pls. xi, xii); KOEHLER & VANNEY (164).

Echinocucumis typica: SCHMIDT (291) p. 22.

Elpidia willmoezi is *Peniagone*; KOEHLER & VANNEY (164) p. 68.

Elpidiidae n. g., see *Eriplastes*.

Euphronides bifurcata n. sp., 1803 fm. S. of B. of Bengal; KOEHLER & VANNEY (164) p. 75, pls. viii, xii.

Eupyrgus pacificus n. sp., 60–65 m., Korea (p. cxvii, fig.), *E. scaber*, added notes (p. cxvii); ÖSTERGREN (236).

Eriplastes n. g. of *Elpidiidae* with genotype *Peniagone ecalcarea* Sluiter (p. 70), *E. obscura* n. sp., 1803 fm., S. of B. of Bengal; KOEHLER & VANNEY (164) p. 71, pl. iv.

Filiturria n. g., incertae fam. (p. 80) with genotype *F. elegans* n. sp., 405 fm. S.W. of Andaman Is. (p. 81, pls. vi, xii); KOEHLER & VANNEY (164).

Gephyrothuria n. g. (p. 78) with genotype *G. alcocki* n. sp., 1912 fm. S. of Ceylon (p. 79, pl. v); KOEHLER & VANNEY (164).

Gephyrothuriidae n. fam. of *Aspidochirota* for preceding; KOEHLER & VANNEY (164) p. 79.

Holothuria arenicola (p. 50), *H. argus* (p. 45, pl. ix); KONINGSBERGER (166). *H. aspera*; KEMP (152), p. 186. *H. atra*; KONINGSBERGER (166) p. 47, pl. viii: redefined on statistical basis; EDWARDS (88). *H. coluber* (p. 51, pl. vii), *H. edulis* (p. 49); KONINGSBERGER (166). *H. flava* is anterior end of a Synaptid, ? *S. inhaerens*; ÖSTERGREN (235) p. clxii. *H. floridana*, incl. *H. mexicana* Ludw., redefined on statistical basis; EDWARDS (88). *H. fusco-punctata*; VANNEY (326) p. 190. *H. graeffii*; KONINGSBERGER (166) p. 47. *H. impatiens*; op. cit. p. 51, pl. viii: VANNEY (326) p. 190. *H. inhaerens*; ÖSTERGREN (235) p. clxii. *H. intestinalis*; KEMP (152) p. 186. *H. marenzelleri* (p. 46), *H. marmorata* (p. 44); KONINGSBERGER (166). *H. mexicana*, vide *H. floridana*. *H. nigra*; KEMP (152) p. 178. *H. pardalis*; PERRIER (249) p. 15; VANNEY (326) p. 189. *H. patagonica*, vide sub *Stichopus*. *H. pyxis*; KONINGSBERGER (166) p. 48. *H. roulei* Koehl. is *Mesothuria*; KOEHLER & VANNEY (164) p. 4. *H. scabra* (p. 52, pl. viii, fig.). *H. squamifera* (p. 53); KONINGSBERGER (166). *H. tremula*; KEMP (152) p. 186. *H. vagabunda* (p. 50, pl. viii), *H. vitiensis* (p. 45); KONINGSBERGER (166).

Incertae sedis, n. g. see *Filiturria*.

Lapidoplax buski; NORDGAARD (230) p. 161: redescr.; ÖSTERGREN (235) p. clvi. *L. media* n. sp., 45 m., off Bergen; op. cit. p. clviii, fig.

Laetmogone violacea; KOEHLER & VANNEY (164) p. 64: colour; KEMP (152) pp. 186, 183.

Ludwigia rejected, vide *Cucumaria ocnoides*; PERRIER (249) p. 105.

Mesothuria abbreviata n. sp., 406 fm., Laccadive Is. (p. 11, pl. xii), *M. incerta* n. sp., 360 fm., Laccadive Is. (p. 11, pls. i, ix); KOEHLER &

VANEY (164). *M. intestinalis*; NORDGAARD (230) pp. 161, 241; RETZIUS (275) p. 83, pl. xii. *M. multipes* (p. 10), *M. squamosa* n. sp., 446 fm., S. Coromandel Coast (p. 13, pls. vi, ix); KOEHLER & VANEY (164).

Muelleria echinata; KONINGSBERGER (166) p. 38. *M. lecanora*; op. cit. p. 37, pl. ix: VANEY (326) p. 190. *M. maculata* (p. 36), *M. mauritiana* (p. 40), *M. miliaris* (p. 39); KONINGSBERGER (166).

Myriotrochinae, characters of subfam.; ÖSTERGREN (235) p. clxi.

Myriotrochus, differences from *Trochoderma*; ÖSTERGREN (235) p. clx. *M. minutus* n. sp., 60–65 m., Korea; ÖSTERGREN (236) p. cxciv, fig. *M. rinki*; NORDGAARD (230) pp. 161, 241. *M. theeli* n. sp., 2000 m., N.W. of Jan Mayen; ÖSTERGREN (235) p. clix. *M. vitreus*; NORDGAARD (230) pp. 161, 241.

Oneirophanta conservata n. sp., 719 fm., N.E. of Maldives; KOEHLER & VANEY (164) p. 57, pls. vi, xi.

Ophnurgus, diagnosis modified (p. 63), *O. glaber* (Walsh, as var. of *O. asper*) (p. 60, pls. viii, xii), *O. invalidus* n. sp., 300 fm., Palk Strait, N. of Ceylon, allied to *Scotodeima* (p. 62, pl. xii); KOEHLER & VANEY (164).

Pannychia moseleyi; HEDLEY (133).

Paroriza comprises *Stichopus pallens*, diagnosis modified; KOEHLER & VANEY (164) p. 4.

Pelopatides discussed (p. 29), *P. fusiformis* Sluiter, is *Benthothuria* (p. 41), *P. gelatinosus* (Walsh sub *Benthodytes*) redescr. (p. 30, pls. v, x), *P. insignis* n. sp., 678 fm., N. Coromandel Coast (p. 38, pls. ii, xi), *P. mammillatus* n. sp., 1506 fm., N. Arabian Sea (p. 39, pl. i), *P. megalopharynx*, perhaps is *Dendrothuria* (pp. 45, 47), *P. modestus* n. sp., 498 fm., Andaman Is., 696 fm., N. Malabar Coast (p. 37, pls. ii, xi), *P. mollis* n. sp., 265–405 fm., Andaman Is. (p. 34), *P. ovalis* (Walsh sub *Benthodytes*) redescr. (p. 35, pls. iii, xi), *P. verrucosus* n. sp., 498 fm., Andaman Is., 695 fm., SE. of Ceylon (p. 33, pl. x); KOEHLER & VANEY (164).

Peniagone ecalarea, vide *Euriplastes*. *P. expansa* n. sp., 1748 fm. S. of B. of Bengal (p. 68, pls. iv, xii), *P. (?) obscura* n. sp., 1803 fm. S. of B. of Bengal (p. 69, pl. xii), *P. stabilis* n. sp., 1803 fm. S. of B. of Bengal (p. 67, pls. iii, v, xii); KOEHLER & VANEY (164).

Pentaeta frondosa; SCHMITT (292) p. 248.

Perizoma n. g. of *Synallactidae*, with genotype *P. magna* n. sp., 740 fm., Laccadives; KOEHLER & VANEY (164) p. 51, pls. i, v, xi.

Phyllophorus, probably will merge in *Pseudocucumis*; KOEHLER & VANEY (163). *P. anatinus* (R. Perr. sub *Thyonidium*) redescr.; PERRIER (249) p. 112, pl. v. *P. drummondi* at Plymouth; NORMAN (232) p. 355. *P. ehrenbergi*; VANEY (326) p. 189. *P. pellucidus*; NORDGAARD (230) p. 161. *P. urna*; POLARA (258); RUSSO (283).

Protankyra conferta n. sp., 805 fm., Gulf of Manaar, 678 fm., N. Coromandel Coast (p. 105, pl. xv), *P. denticulata* n. sp., 410 fm., N. Coromandel Coast (p. 105, pl. xv), *P. errata* n. sp., 130–150 fm., Andaman Is., 480 fm., B. of Bengal = "Ankyroderma marenzelleri Theel" Walsh (p. 106, pl. xv), *P. inflexa* n. sp., 410 fm., B. of Bengal (p. 109, pl. xv), *P. timida* n. sp., 561–650 fm., Andaman Is. (p. 108, pl. xv), *P. tristis* n. sp., 1310 fm., N. of B. of Bengal (p. 107, pl. xv); KOEHLER & VANEY (164).

Pseudocucumis cuenoti n. sp., 20–50 m. off Arcachon, allied to *Phyllophorus*; KOEHLER & VANEY (163).

Pseudopsolus macquariensis, added notes; PERRIER (249) p. 111.

Pseudostichopus occultatus n. var. *plicatus*, 1644 fm., Andaman Is.; KOEHLER & VANEY (164) p. 9, pls. iii, ix.

Pseudothuria n. g. of *Synallactidae* (p. 47), with genotype *P. duplex* n. sp., 902 fm., N. of Laccadives (p. 48, pl. iv); KOEHLER & VANEY (164).

Psolidium, diagnosis modified (pp. 46 & 108), key to spp. (p. 55), *P. convergens*, sole, podia, sclerites, passage to *Cucumaria* (p. 38, pl. ii and figg.), *P. dorsipes*, added notes, rediagnosed, p. 48, pl. ii and figg.; PERRIER (249). *P. (?) rugosum* n. sp., 102 fm. off S. Malabar (p. 82, pls. vi, xiii), *P. (?) translucidum* n. sp., 457-589 fm., Gulf of Manaar (p. 83, pls. vi, xiii); KOEHLER & VANNEY (164).

Psolus, extension of diagnosis; KOEHLER & VANNEY (164) p. 86. *P. antarcticus*, added notes, young stages; PERRIER (249) p. 35. *P. californicus* n. sp., Monterey Bay, Cal., 120 m.; FISHER (93). *P. fabricii*; CLARK (55) p. 11: immature; KEMP (152) p. 185: (cf.); +NORDMANN (231). *P. levis* n. sp., 102 fm. off S. Malabar (p. 86, pls. vi, xiii), *P. membranaceus* n. sp., 102 fm. off S. Malabar (p. 84, pls. vi, xiii); KOEHLER & VANNEY (164). *P. phantapus*; CLARK (55) p. 11: HØRRING (142) p. 189: NORDGAARD (230) p. 161. *P. squamatus*; CLARK (55) p. 12: SCHMITT (292) p. 248: n. var. *segregatus*, off C. Horn; PERRIER (249) p. 59.

Psychropotes minutus n. sp., 1140 fm., Laccadives; KOEHLER & VANNEY (164) p. 76, pls. viii, xii.

Rhabdomolgus ruber, redescri., is a low Synaptid; LUDWIG (196).

Stichopus ananas (p. 41, pl. vi), *S. chloronotus* (p. 42); KÖNINGSBERGER (166). *S. fuscus* (p. 16), *S. mollis*, added notes (p. 83); PERRIER (249). *S. pallens* Koehl. is *Paroriza*; KOEHLER & VANNEY (164) p. 4. *S. (?) Holothuria patagonicus*, Sta. Cruz, now first figd. (p. 11, pl. i), *S. torvus* (p. 15); PERRIER (249). *S. tremulus*; NORDGAARD (230) pp. 161, 241. *S. variegatus* (p. 42, pls. vi, vii), *S. vastus* (p. 43); KÖNINGSBERGER (166).

Synallactes (?) *dubius* n. sp., 480 fm., G. of Manaar (p. 19, pl. ix), *S. horridus* n. sp., 1746 fm., B. of Bengal (p. 16, pl. xii); KOEHLER & VANNEY (164). *S. moseleyi* (Theel sub *Stichopus*), redescri.; PERRIER (249) p. 6, fig. *S. (?) pellucidus* n. sp., 210 fm., S. Coromandel Coast (p. 21, pls. iv, ix), *S. rigidus* n. sp., 1924 fm., Andaman Is. (p. 17, pls. v, ix), *S. wood-masoni* (Walsh) incl. *Amphigymnas multipes* Walsh and *S. reticulatus* Sluiter (p. 14, pl. ix); KOEHLER & VANNEY (164).

Synallactidae, n. gg., see *Dendrothuria*, *Pseudothuria*, *Allopatides*, *Perizonia*, *Bathyzona*.

Synapta, modifications of diagnosis; ÖSTERGREN (235) p. clv. *S. sp.*; BOCHENEK (33): SAFFORD (284) p. 89. *S. acanthia*, straight gut, see II, d, vii (p. cxlv), *S. bergensis* n. sp., 5-50 m. W. Coast of Norway & Sweden, & Faeroes, anatomy (p. cxxxiii, fig.), *S. bifaria* (p. cxlii), *S. decaria* n. sp., 40-70 m. W. Coast Norway & Sweden (p. cxlii, fig.); ÖSTERGREN (235), *S. digitata* (p. 177), n. var. *profundicola*, 112 fm., 50 miles W.N.W. of Slyne Hd., Galway (p. 184); KEMP (152). *S. duvernaea* (p. cxlii), *S. gallienii*, distinguished from *S. inhaerens* and *S. bergensis* (p. cxlii), *S. girardii* (p. cxlii), *S. henslowana* (p. cxlii), *S. hispida*, perhaps a *Protankyra* (p. cxlii); ÖSTERGREN (235). *S. inhaerens*; CLARK (55) p. 13: KEMP (152) pp. 177, 184: autotomy (p. cxxxv), redescri. from type-loc., S. Norway, differences from Mediterranean race and from *S. girardii* (p. cxlii, fig.); ÖSTERGREN (235). *S. macrankyra* compared with *S. bergensis*, and maintained; op. cit. pp. cxlii, cliv. *S. pourtalesi*, probably a *Chondrocloea*; op. cit. p. cliv. *S. roseola*; CLARK (55) p. 13. *S. sarniensis*, synonym of *S. gallienii* (p. cxlii), *S. tenera*, syn. of *S. buski* (p. cxlii); ÖSTERGREN (235).

Synaptidae, modification of diagnosis, no ciliated organs; ÖSTERGREN (235) p. clvii.

Thyonia briareus; CLARK (55) p. 10: GARREY (108). *T. elongata*; CLARK (55) p. 10. *T. fusus*; KEMP (152) pp. 178, 205. *T. lechleri*, sclerites; PERRIER (249) p. 35. *T. raphanus*; KEMP (152) p. 185. *T. sacellus*; VANNEY (326) p. 189. *T. scabra*; CLARK (55) p. 10. *T. spectabilis*,

- calcareous ring and other notes; PERRIER (249) p. 32, pl. iii and figg.
T. unisemita; CLARK (55) p. 10.
Thyonidium anatinum, vide sub *Phyllophorus*. *T. pellucidum* and *T. productum*; CLARK (55) p. 11.
Trochoderma, differences from *Myriotrochus*; ÖSTERGREN (235) p. clx.
Trochodata dunedinensis, added notes (p. 123), *T. purpurea*, added notes (p. 76); PERRIER (249).
Trochostoma albicans, added notes (p. 89, pl. xiii), *T. andamanense*, added notes (p. 90, pl. xiii); KOEHLER & VANNEY (164). *T. boreale*; SCHMIDT (291) p. 20. *T. concolor* n. sp., 475 fm., B. of Bengal (p. 91, pls. v, xiii), n. var., *caudatum*, 637–800 fm., Stat. 199, 8° 40' N., 81° 27' 35" E. [this is in the middle of Ceylon] (p. 92, pl. xiii), *T. ecalcareum* n. sp., 300 fm., S. Coromandel Coast (p. 94, pl. xiii), *T. elongatum* n. sp., 922 fm., N. of Andaman Is. (p. 92, pls. i, xiv), *T. granulatum* (p. 89); KOEHLER & VANNEY (164). *T. ooliticum*; CLARK (55) p. 12. *T. pauperum* n. sp., 446 fm., S. Coromandel Coast; KOEHLER & VANNEY (164) p. 93, pl. xiii. *T. turgidum*; CLARK (55) p. 12. *T. violaceum*; PERRIER (249) p. 65.
† *Uncinulina polymorpha*; HUCKE (143) p. 167, pl. xxiv.
Ypsilothuria bitentaculata (Ludwig 1894), incl. *Y. attenuata* E. Perrier "1891" [i.e. 1886, in either case has priority and validity]; KOEHLER & VANNEY (164) p. 87.

(C).—ECHINOIDEA.

- † *Acrocidaris*, diagnosis; SAVIN (286) p. 226. *A. formosa*; MAURY (210) p. 583. *A. minor*; SAVIN (286) p. 227, pl. iv. *A. nobilis*; KILIAN (156) p. 818: MAIRE (206) p. 229: SAVIN (286) p. 226.
† *Acropeltis*, diagnosis; SAVIN (286) p. 199. *A. aequituberculata*; DOUVILLE (84): KILIAN (156) pp. 807, 818: LAMBERT (172) p. 574: SAVIN (286) p. 200.
† *Acrosalenia*, diagnosis; SAVIN (286) p. 224. *A. sp.*; THÉVENIN (313) p. 76. *A. meslei*; DOUVILLE (84): Gauthier's figure criticised; LAMBERT (172) p. 570. *A. patella*; SAVIN (286) p. 225. *A. cf. pisum*; THÉVENIN (313) p. 87. *A. spinosa*; LISSAJOUS (183) p. 697.
† *Amblypygus dilatatus*; DONCIEUX (81) p. 107: n. var. *costulatus*, Mid. Eocene, Pyramids of Ghizeh; FOURTAU (98) pp. 133, pl. i.
Amphidetus cordatus; COLGAN (61) p. 212. *A. ovatus*; HØRRING (142) p. 189.
† *Amphiopae neuparthi* n. sp., Miocene, Bom Jesus, Loanda; LORIOL (195) p. 133, pl. x: CHOIFFAT (50) p. 43.
Amphipneustes is related to *Abatus*: *A. koehleri* n. sp., off S. Georgia, Antarctic; MORTENSEN (220) p. 243, no fig.
† *Ananchetes*, vide *Echinocorys*.
† *Anisaster gibberulus*; BEADNELL (24) p. 52: variations in fasciole; LAMBERT (171) p. 157 footnote.
Araeosoma fenestratum, distrib.; DOEDERLEIN (79) p. 377.
Arbacia dufresni; PORTER (260) p. 131. + *A. monilis*; COUFFON (63) pp. 165, 214. *A. nigra*; PORTER (260) p. 131. *A. punctulata*; CLARK (55) p. 8: GARREY (108).
Arbacina, discussed and maintained: *A. pallaryi*; CHECCHIA (49). + *A. tenera*; AIRAGHI (5) p. 47.
† *Archaeocidaris*:—*A. sp.*; HIND (138) p. 121: WARD (330) pp. 294, 320, 343: cf. *benburbensis* et *vetusta*; BATHER in STOBBS (308) and pl. *A*. cf. *munsterianus* (p. 316), *A. nerei* (p. 196), *A. sisi* (pp. 117, 182, 187); MALLADA (208). *A. urei*; HIND (139) pp. 235, 237. *A. wortheni*; ULRICH (321) p. 33.

- Asterostomidae* Pomel should be used by any who care to accept the group called *Plesiopatangidae* by Duncan; FOURTAU (97) p. 612.
- Asthenosoma hystrix*; KEMP (152) p. 196: vide etiam sub *Calveria*.
- †*Astrechinus pentagonus* nom. nud.; JAEKEL (145).
- †*Astrolampas*:—*A.* sp.; SAYN (287) p. 622: *A. romani* n. sp., Barremian, Seynes (Gard), colln. Roman & Lambert; LAMBERT (170) p. 841, figg.
- †*Autacocidaris michaleti* n. sp., Neocomian, La Palud de Moustier, Basses Alpes; LORIOL (195) p. 140, pl. x.
- †*Baueria rouselli*; DONCIEUX (81) p. 102: MIQUEL (215) p. 24.
- †*Botriopygus*:—*B. morloti*; LORIOL (195) p. 143. *B. nucula*, vide sub *Pygorhynchus*. *B. savini*; CHOIFFAT (51) pp. 7, 35. *B. sueuri* and *B. testudo*, vide sub *Pygorhynchus*. *B. trapeti*, probably *Phyllobrissus*; LAMBERT (172) p. 575. *B. valdensis*, vide sub *Pygorhynchus*. *Breynella* Gregory 1891 [=1891], syn. of *Pliolampas* Pomel 1888; AIRAGHI (5) p. 50: syn. of *Echinanthus*; LAMBERT (171) p. 144.
- Brissidae*, n. g. vide *Pseudobrissus*.
- †*Brissoides* Klein, Lambert's resuscitation of this rejected in favour of *Euspatangus* (q. v.); LORIOL (195) p. 130: ditto (p. 603). *B. cranium* Klein, unrecognisable (p. 604); FOURTAU (97). *B. meijerei* n. sp., Lutetian, Minerve, Hérault; LAMBERT (171) p. 163, pl. v: DONCIEUX (81) p. 104: MIQUEL (215) p. 20. *B. oppenheimeri* n. sp., Burdigalian, Gattières, Alpes-Maritimes; LAMBERT (173) p. 881, pl. lix. *B. savini*; DONCIEUX (81) p. 104: MIQUEL (215) p. 20 & (?) p. 25.
- Brissopsis lyrifera*; KEMP (152) p. 200: RETZIUS (275) p. 82, pl. xii; SCHMIDT (291) p. 21: distrib.; DOEDERLEIN (79) p. 384. †*B. sismondai*, holotype descr.; AIRAGHI (6) p. 3, pl. i.
- †*Brissus*:—*B. carinatus*; MAWSON (211) pp. 414, 451, 479. *B. corsicus* Cott, vide *Pseudobrissus*. *B. oblongus*; AIRAGHI (8) p. 217.
- Calveria hystrix*; SCHMIDT (291) p. 23: distrib.; DOEDERLEIN (79) p. 377: vide etiam sub *Asthenosoma*.
- †*Capsulina loculicida* Seguenza 1879, no foraminifer but an ophicephalous pedicellaria; NEVIANI (224).
- †*Caratomus*, diagnosis, *C. faba*; SAVIN (286) p. 153.
- †*Cardiaster*:—*C.* sp.; WHITE (338) p. 476. *C. ananchytis*; DEEKE (69) p. 17: FLEGEL (95). *C. fossarius*; JUKES-BROWNE (150) p. 25. *C. gillieroni*; ROESSINGER (278) p. 437. *C. jugatus*; WEGNER (333) pp. 128, 133, 139, 140, 150. *C. subtrigonatus*?; ROESSINGER (278) p. 437.
- †*Cardiopeltia*, diagnosis; SAVIN (286), p. 143. *C. (Spatangus) carinata*; KILIAN (156) p. 807. *C. hemisphaerica* (A. Gras, sub *Dysaster*) (p. 146), *C. jaccardi* and *C. malbosi* (p. 144); SAVIN (286). *C. moussonii*; HITZEL (140). *C. ovulum*; SAVIN (286) p. 145.
- †*Cassidulus*:—*C. fibularoides*, vide sub *Porpitella*. *C. florealis*, locc. of type and figd. specimens; JOHNSON (146). *C. hayesianus*, vide sub *Porpitella*. *C. lapis-cancri*; WEGNER (333) pp. 139, 149. *C. ovalis*; DONCIEUX (81) p. 102.
- †*Catopygus*, diagnosis; SAVIN (286) p. 162. *C. albensis*; PETRASCHECK (254) p. 416. *C. cf. carinatus*; TOULA (317) p. 359. *C. columbarius*; JUKES-BROWNE (150) p. 25. *C. cylindricus*; HITZEL (140); SAVIN (286) p. 162. *C. gibbus*; FOURTAU (98) p. 128. *C. obovatus* vide *Pygorhynchus*.
- Cidaridae* n. gg. vide *Lamprechinus*, *Orechinus*, *Pygmaeocidaris*.
- Cidaris* (vide etiam s.-gg. *Doro-*, *Para-*, *Plegio-*, *Podo-*, *Poly-*, *Poro-*, *Rhabdo-*, *Stereo-cidaris*) diagnosis; SAVIN (286) p. 239.
- †*Cidaris* sp.; MARTELLI (209) pp. 327, 333. *C.* sp. nondescr., radiole, Senonian of Var. (p. 307, pl. ii), *C.* sp. nondescr. 1, Hauterivian, Isère, test (p. 247, pl. iii), *C.* sp. nondescr. 2, Hauterivian, Isère, radioles

- (p. 247, pl. iii), *C. aizyensis* (p. 241); SAVIN (286). *C. avenacea* n. sp., Hauterivian of St Pierre de Chérennes, Isère, radiole only; LAMBERT & SAVIN (286) p. 242. *C. avenionensis*; AIRAGHI (5) p. 46: SAVIN (286) p. 240. *C. barroisi*; PAQUIER (238) p. 134. *C. cf. bathonica*; DENINGER (73) p. 438. *C. belgica*; VAN ÈRTBORN (325). *C. blumenbachi*; MAIRE (206) p. 222: ROTHPLETZ (281) p. 51. *C. brauni*; BLASCHKE (32) p. 166. *C. carinifera*; ROTHPLETZ (281) p. 55. *C. cervicalis*; MAIRE (206) p. 224: THÉVENIN (313) p. 87. *C. cherennensis* n. sp., Hauterivian, St-Pierre-de-Chérennes, Malleval, Isère, radioles only; SAVIN (286) p. 245, pl. v. *C. clavigera*; TREACHER (319) p. 156: WHITE (338) pp. 468, 487: YOUNG (347) p. 216. *C. cornifera*; SAVIN (286) p. 253. *C. coronata*; MAIRE (206) p. 223: ROTHPLETZ (281) pp. 50, 51. *C. cucumifera*; LISSAJOUS (183) pp. 691, 692: ROTHPLETZ (281) p. 36. *C. cydonifera*; SAVIN (286) p. 242, pl. xiv. *C. decorata* & *C. dorsata*; BLASCHKE (32) p. 166. *C. elegans*; MAIRE (206) p. 223. *C. feringdonensis*; DAVEY (66) p. 31. *C. filograna*; ROTHPLETZ (281) p. 51. *C. aff. flabellata* & *C. florigemma*; MAIRE (206) p. 224. *C. gevreyi* n. sp., Hauterivian, Malleval & St-Pierre-de-Chérennes, Isère, radioles only; LAMBERT & SAVIN (286) p. 243, pl. v. *C. gibberula*, vide sub *Plegiocidaris*. *C. gibbosa*; KILIAN (156) p. 806. *C. glandifera*; REMES (270, 271, & 273).
- Cidaris gracilis*, probably young *C. purpurata*; KEMP (152) p. 196.
- + *Cidaris grandaeva*; SCHUMACHER (295) p. 105. *C. grossouvrei*; DONCIEUX (81) p. 98: MIQUEL (215) p. 24. *C. heteracantha*, vide sub *Typocidaris malum*. *C. hirudo*; WHITE (338) pp. 470, 487: YOUNG (347) p. 216. *C. insignis*; SAVIN (286) p. 256. *C. jacobi* n. sp., Hauterivian, St-Pierre-de-Chérennes, Isère, radioles only; LAMBERT & SAVIN (286) p. 244, pl. vi. *C. aff. jullieni*; CHOIFFAT (51) p. 42. *C. laeviuscula*; LEE (178) p. 84: ROTHPLETZ (281) pp. 50, 51. *C. lamberti* n. sp., zones of *Holaster placenta*, & *Echinoconus conicus*, near Sens, Yonne, radioles only; VALETTE (324) p. 22, figg. *C. lardyi*; PARONA (242) p. 66: PERON (248) pp. 365, 369: with note by LAMBERT; SAVIN (286) p. 251, pls. ii, iii: radioles; AIRAGHI (7) p. 85, pl. i. *C. malherroi*; CHOIFFAT (50) p. 58. *C. malum*; CHOIFFAT (51) p. 9. *C. marginata*; MAIRE (206) p. 225. *C. cf. mespilum*; REDLIUH (266) p. 342. *C. monilifera*; MAIRE (206) p. 224. *C. moravica* n. sp., Tithonian of Stramberg; REMES (269) p. 63, pl. vii. *C. muricata*; PARONA (242) p. 66: radioles; AIRAGHI (7) p. 84, pl. i. *C. noyareyensis*; SAVIN (286) p. 241. *C. oosteri*; DOUVILLE (83) p. 17. *C. oppeli*; ROTHPLETZ (281) p. 50.
- Cidaris papillata*; KEMP (152) pp. 196, 206: NOBRE (229) p. 134.
- + *Cidaris papillata*; CHECCHIA (48): FAVRE (91) p. 99. *C. peroni*; AIRAGHI (5) p. 47. *C. perornata*; TREACHER (319) p. 156: YOUNG (347) p. 216. *C. platyspina*; MAURY (210) p. 583. *C. poculiformis* nom. nud.; BAKALOW (13). *C. pomeli*, vide sub *C. subularis*. *C. pretiosa*; ROTHPLETZ (281) p. 70: SAVIN (286) p. 248. *C. problematica*; op. cit. p. 241. *C. propinqua*; MAIRE (206) p. 225: ROTHPLETZ (281) p. 50. *C. punctatissima*, radioles descr.; SAVIN (286) p. 249. *C. pustulifera*; ROGERS (279) p. 294. *C. pustulosa*, radiole; SAVIN (286) p. 249, pl. ii. *C. reussi*; PETRASCHECK (254) p. 425. *C. ryzacantha*, radioles descr.; SAVIN (286) p. 254. *C. sabaratensis*; DONCIEUX (81) p. 98: MIQUEL (215) p. 26: variation from type; LAMBERT (171) p. 133. *C. sceptifera*; TREACHER (319) pp. 156, 158: WHITE (338) pp. 468, 473, 487: YOUNG (347) p. 216. *C. schloenbachi*; MAIRE (206) p. 223. *C. semiaspera*; DOUVILLE (83) p. 22. *C. semicostata*: BLASCHKE (32) p. 167. *C. serrifera*; TREACHER (319) p. 156: WHITE (338) p. 470. *C. sorigneti*; TOULA (317) p. 364. *C. spinosa*; AEBERHARDT (1) p. 442. *C. spinulosa*; LISSAJOUS (183) p. 691. *C. stylophora*, & cf.;

- SAVIN (286) p. 255, pl. ii. *C. subcoronata*; BLASCHKE (32) p. 166. *C. subvesiculosa*; SAVIN (286) p. 256. *C. subularis*; DONCIEUX (81) p. 99; MIQUEL (215) pp. 19, 24: comprises plates referred by Cottreau to *C. pomeli*; LAMBERT (171) p. 133. *C. cf. subularis*; MURGOCI (223). *C. suevica*; MAIRE (206) p. 225. *C. vafellus*; CHOFFAT (50) p. 61. *C. vesiculosus*; PETRASCHECK (254) p. 425: ROTHPLETZ (281) p. 80. *C. zschokkei*; op. cit. p. 35; THÉVENIN (313) p. 76.
- †*Cirycopeltis* :—*C. baicherei*; DONCIEUX (81) p. 101. *C. cannati* n. sp., Lower Lutetian, Agel, Hérault; LAMBERT (171) p. 135, pl. v: DONCIEUX (81) p. 101; MIQUEL (215) p. 26. *C. neacomiensis*; CHOFFAT (51) p. 10.
- †*Clitopygus*, diagnosis & *C. grasi*; SAVIN (286) p. 158. *C. gevreyi* n. sp., Valanginian, Malleva, Isère; LAMBERT & SAVIN (286) p. 159, pl. i.
- †*Clypeaster* Lam. 1801, genotype *Echinus rosaceus* Linn. as first limited by Lamarck and not as interpreted by Lovén 1887, precedes *Clypeaster* Lam. 1801; LAMBERT (171) p. 142. *C. alticostatus*; AIRAGHI (8) p. 211. *C. altus* var. *portentosus* (q.v.); BATHER (20). *C. biarritzensis*; DOUVILLE (83) pp. 17, 27. *C. crassicostatus*; AIRAGHI (5) p. 48; GAÁL (103) pp. 344, 362: incl. *C. rhabdopetalus* Pommel; AIRAGHI (8) p. 210. *C. ellipticus* (p. 213), *C. folium* (p. 214), *C. intermedius* (p. 212); AIRAGHI (8). *C. laganooides*; AIRAGHI (5) p. 49, pl. *C. latirostris* (p. 212), *C. lovisatoi* (p. 214); AIRAGHI (6). *C. portentosus*; BATE (18) p. 324: BELLAMY (28) p. 27: v. et. *altus*. *C. rhabdopetalus*, vide *C. crassicostatus*. *C. sardininiensis*; AIRAGHI (8) p. 213. *C. scutiformis*; MAWSON (211) pp. 414, 479. *C. subfolium* (p. 214), *C. sublaganooides* n. sp., Miocene, Carcare, Piedmont (p. 212); AIRAGHI (8).
- †*Clypeopygus*, diagnosis (p. 165), *C. michelini* & *C. subquadratus* (p. 166); SAVIN (286).
- †*Clypeus* :—*C. altus*; LISSAJOUS (183) p. 695: incl. *C. osterwaldi* Desor; WELSCH (326) p. 947.
- †*Codechinus*, diagnosis (p. 197), *C. rotundus* (p. 198); SAVIN (286).
- †*Codiopsis*, diagnosis; SAVIN (286) p. 192. *C. lorini*; CHOFFAT (51) p. 9: SAVIN (286) p. 193.
- †*Collyrites*, diagnosis; SAVIN (286) p. 141. *C. analis*; LISSAJOUS (183) p. 697. *C. (Spatangus) bicordata*; KILIAN (156) p. 807: MAIRE (206) p. 218: SAVIN (286) p. 142. *C. capistrata*; l. c.: KILIAN (156) p. 792. *C. carinata*, does not incl. specimens referred here by Quenstedt, which are *Cardiopelta*; KILIAN (157). *C. (Dysaster) loryi*; KILIAN (156) p. 807: SAVIN (286) p. 143. *C. ringens*; LISSAJOUS (183) pp. 694, 695: ROTHPLETZ (281) p. 38. *C. verneuili*; CISNEROS (53) p. 299.
- †*Conoclypeus* :—*C. anachoreta*; REDLICH (266) p. 343. *C. caudatus* n. sp., Middle Eocene of Grola and Novale, Italy; AIRAGHI (6) p. 5, pl. i. *C. conoideus*; CISNEROS (54) p. 529: DONCIEUX (81) p. 110: REDLICH (266) p. 343. *C. cf. conoideus*; SCHUBERT (294) p. 280. *C. delanouei*; BALL (14) p. 90. *C. marginatus*; DONCIEUX (81) p. 111: MIQUEL (215) p. 20. *C. plagiosomus*; GAÁL (103) pp. 344, 362: vide etiam sub *Conolampas*. *C. vilanovaae*; CISNEROS (54) p. 529.
- †*Conolampas plagiosomus*; AIRAGHI (5) p. 52: vide etiam sub *Conoclypeus*.
- †*Conulus* Leske ex Klein, incl. *Echinites* Leske non Gesner, *Galerites* Lam., and *Echinoconus* d'Orb. ex Breyn. (qq.v.); BATHER (19) p. 146: diagnosis; SAVIN (286) p. 175. *C. castaneus*; l. c.; HITZEL (140). *C. mixtus*; SAVIN (286) p. 177: HITZEL (140): probably syn. of *C. castaneus*; LAMBERT in Review. *C. nuculus* [err. pro *nucula

†*Copotosoma* :—*C. armatum* n. sp., Eocene, La Antigua Ciudad de Jespus,*

- Catalonia ; LORIOL (195) p. 120, p. viii. *C. granulare* ; DONCIEUX (81) p. 100. *C. pellati* ; DOUVILLE (83) p. 22. *C. rousseli* ; DONCIEUX (81) p. 100. "*C. thevestense* Peron & Gauthier" Gregory (see Zool. Rec. 1898) is *Cyphosoma abbatei* ; FOURTAU (98) p. 122.
- +*Corthyta* Pomel, merged in *Cardiopelta* ; SAVIN (286) p. 146.
- Cottalda forbesiana* is no *Arbacina* ; CHECCHIA (49).
- +*Cyclaster zinnae* n. sp., Eocene of Novale, Italy ; AIRAGHI (6) p. 8, pl. i.
- +*Cyphosoma* (vide etiam *Phymosoma*) :—*C. abbatei* ; BEADNELL (22) pp. 19, 21, 26, 32 : abnormalities, is neither *Heteractis* nor *Lambertechinus* ; FOURTAU (98) p. 121, pl. i : vide Corrigenda. *C. corallare* and *C. koenigi* ; YOUNG (347) p. 216. *C. radiatum* ; l. c. : vide etiam sub *Gauthieria*. *C. rhenana* Ludw. is *Coptosoma* ; LORIOL (195) p. 121.
- Deakia* Pavay, probably *Macropneustes* ; LAMBERT (171) p. 156.
- +*Desorella*, diagnosis, *D. grasi* ; SAVIN (286) p. 149.
- Desoria* Gray non Cott, vide sub *Linthia*.
- Diadema* :—+*D. grasi*, vide sub *Polydiadema*. *D. setosum* ; PUETTER (263) p. 23.
- +*Diademopsis*, diagnosis ; SAVIN (286) p. 221. *D. lamberti* n. sp., Middle Lias, Rocchetta near Arcevia, Italy ; AIRAGHI (6) p. 1, pl. i. *D. serialis* ; SAVIN (286) p. 221.
- +*Dictyopleurus haimi* ; BEADNELL (24) p. 52.
- +*Diplocidaris*, diagnosis ; SAVIN (286) p. 287. *D. etalloni* ; MAIRE (206) p. 227 : REMES (269) p. 63 : SAVIN (286) p. 289. *D. gevreyi* ; op. cit. p. 299. *D. gigantea* ; MAIRE (206) p. 227 : MAURY (210) p. 583 : SAVIN (286) p. 288.
- +*Diplodetus recklinghausenensis*, vide sub *Micraster*.
- +*Diplopodia*, diagnosis ; SAVIN (286) p. 236. *D. aroviensis* ; LORIOL (195) p. 143. *D. brongniarti* ; HITZEL (140) : SAVIN (286) p. 237. *D. dubia* ; op. cit. p. 236. *D. dumasi* ; LAMBERT (170) p. 846. *D. variolaris* ; SAVIN (286) p. 238.
- +*Disaster* (seu *Dysaster*), diagnosis ; SAVIN (286) p. 139. *D. granulosus* ; MAIRE (206) p. 219 : SAVIN (286) p. 140. *D. (Collyrites) cf. ovalis* ; TOULA (318) p. 272. *D. subelongatus* ; SAVIN (286) p. 140.
- +*Discidea* Gray, err. typ., vide *Discoides*.
- +*Discoides* Agassiz 1836 (emend *Discidea* Gray err. typ.) incl. *Discoides* Klein 1734, *Discoides* Parkinson 1811 non Renier 1804, *Echinites* Duncan 1889, *Protocyamus* Greg. 1900 ; BATHER (19) but see LAMBERT in Review.
- Discoides* Klein, rejected ; FOURTAU (97) p. 604.
- +*Discoides* Parkinson non Renier, syn. of *Discordea* ; BATHER (19).
- +*Discoides* (seu *Discoides*), diagnosis ; SAVIN (286) p. 178. *D. conicus* ; HITZEL (140) : SAVIN (286) p. 179. *D. cylindricus* ; op. cit. p. 181. *D. decorata* ; l. c. : PAQUIER (238) p. 134. *D. divoni* ; YOUNG (347) p. 216. *D. favrei* (= *favrina*) ; SAVIN (286) p. 182. *D. rotulus* ; op. cit. p. 180 : HITZEL (140) : SAVIN (286). *D. subucula* preferred to *subuculus* ; BATHER (19).
- +*Ditremaster nux* ; DOUVILLE (83) pp. 22, 28 : var. *aegyptiacus* Gauthier [Nov. 1902], preferred to *Opissaster fourtaui* Lambert [Feb. 1902] ; FOURTAU (98) p. 134, pl. i.
- Dorocidaris papillata* ; SCHMIDT (291) p. 23 : distrib. ; DOEDERLEIN (79) p. 375 : vide etiam sub *Cidaris*.
- Dysaster*, vide *Disaster*.
- Echinanthinae*, vide sub *Echinolampidae*.
- +*Echinanthopsis* Mun. Ch. rejected ; LAMBERT (171) p. 144.
- Echinanthus* Breynius 1732, and Leske, genotype said to be *E. ovatus* Leske with var. *E. issyaviensis* ; LAMBERT (171) p. 142.
- Echinanthus* Gray 1825, and Haime 1853, rejected ; LAMBERT (171) p. 143.
- +*Echinanthus* :—*E. sp. ind.* ; SCHUBERT (294) p. 280. *E. aremoricus*

- and *E. camerinensis*, vide sub *Pliolampas*. *E. cotteai*; DONCIEUX (81) p. 109. *E. ibericus* n. sp., Eocene, La Antigua Ciudad de Jespus, Catalonia; LORIOL (195) p. 124, pl. viii: syn. of *Echinolampas morgadesi*; Lambert in Review 1905 and Note 1906. *E. scutella* Cott. non Lam. = *E. arizensis* Cott.: *E. scutella* Lam. is a normal form of the genus: *E. scutella* Leymerie non Lam. = *E. gracilis* Cott.; LAMBERT (171) p. 144. *E. aff. scutella*; SCHUBERT (294) p. 280. *E. subrotundus*; AIRAGHI (6) p. 6, pl. i: DONCIEUX (81) p. 110. *E. subrotundus* Cott., incl. *E. pyrenaicus*, *ataxensis*, *rayssacensis*, *pouechi* pars, *rousselii*, & *heberti*, all of Cotteau; LAMBERT (171) p. 145. *E. tumidus*; REDLICH (266) p. 342. *E. wrighti*; DONCIEUX (81) p. 109; MIQUEL (215) pp. 19, 24.
- Echinarachnius parma*; CLARK (55) p. 8: GREGORY (120): SCHMITT (292) p. 247: distrib.; DOEDERLEIN (79) pp. 382, 391.
- Echinidae* n. g. vide *Notechinus*.
- †*Echinites* Duncan non Müller & Troschel, nec Leske, nec Gesner, vide *Discoidea*.
- †*Echinites* Leske non Gesner, vide *Conulus*. *E. excavatus* Leske, vide sub *Psammechinus*.
- †*Echinobrissus*, vide étiam *Nucleolites*. *E. atlanticus* n. sp., Upper Cretaceous, Gabun, W. Africa; KOSSMAT (167) p. 585, pl. ii. *E. clunicularis*; LISSAJOUS (183) p. 697. *E. pulvinatus*, probably *Clitopygus*; LAMBERT (172) p. 575. *E. salevensis* n. sp., "calcaire coralligène" Mont Salève, Haute Savoie; LORIOL (195) p. 145, pl. ix: probably *Clitopygus*; LAMBERT in Review. *E. aff. scutatus*; MAIRE (206) p. 221. *E. waltheri*; BEADNELL (22) pp. 19, 27.
- Echinocardium cordatum*; KEMP (152) p. 182: NORDGAARD (230) p. 160: †NEWTON (225): distrib.; DOEDERLEIN (79) p. 384. *E. flavescens*; NORDGAARD (230) p. 160: distrib.; DOEDERLEIN (79) p. 384. *E. pennatifidum*; KEMP (152) pp. 199, 183.
- †*Echinoconus*, vide etiam *Conulus* et *Galerites*. *E. sp.*; FAVRE (91) p. 100. *E. conicus*, cum var. *tumidus*, et *E. sub-rotundus*; YOUNG (347) p. 216. *E. vulgaris*; GOSSELET (116) p. 20.
- †*Echinocorys* (seu *Ananchytes*), diagnosis, *E. cotteai*; SAVIN (286) p. 136. *A. ovata*; BALL (14) p. 88; and (15) pp. 30, 32: DEECKE (69) pp. 15, 17; FAVRE (91) p. 101, pl. ii: FLEGLÉ (94): TOULA (317) p. 362. *E. papillosum*?; ROESSINGER (278) p. 437. *E. scutatus*; TREACHER (319) p. 158: WHITE (338) pp. 468, 470, 472, 473, 476, 487: var. of *pyramidatus*; WHITE (338) pp. 472, 473. *E. vulgaris*; BEADNELL (23) p. 668: GOSSELET (116) pp. 20, 21: ROESSINGER (278) p. 437: ROTHPLETZ (281) p. 81. *E. vulgaris* Breynius 1732; SAVIN (286) p. 137. *E. vulgaris* cum varr. *gibbus* et *pyramidatus*; YOUNG (347) pp. 196, 216.
- †*Echinocrinus*, vide *Archaeocidaritis*.
- Echinocyamus* vide etiam sub *Fibularia*. †*E. sp.*; MAWSON (211) p. 479. †*E. piriformis*; DOUVILLE (83) p. 50. *E. pusillus*; KEMP (152) pp. 182, 199; NOBRE (228) p. 82: NORDGAARD (230) p. 160: distrib.; DOEDERLEIN (79) p. 382. †*E. studeri*; AIRAGHI (5) p. 48. †*E. trans-sylvanicus*; GAÁL (103) pp. 357, 362. †*E. umbonatus*; AIRAGHI (5) p. 48.
- †*Echinolampas*, diagnosis; SAVIN (286) p. 167. *E. africanus*; FOURTAU (98) p. 132. *E. anceps* n. sp., Mid. Eocene, Senegal; LAMBERT in CHAUTARD (47) p. 151, pl. v, also p. 145. *E. angulatus*; AIRAGHI (5) p. 52, pl. *E. bredeahensis* n. sp., Miocene, Chah-Bel Balbiah, near Bredeah, Oran; LORIOL (195) p. 135, pl. ix. *E. crameri*; BEADNELL (24) p. 50. *E. ellipsoïdalîs*; DOUVILLE (83) p. 22. *E. goujoni*; LAPPARENT (176): discussed; LAMBERT in CHAUTARD (47) pp. 142, 152. *E. hemisphaericus*; AIRAGHI (5) p. 53, (8) p. 214: CHOIFFAT

(51) p. 14 : SAVIN (286) p. 167. *E. inaequiflos* n. sp., Lutetian of Aude & Hérault ; LAMBERT (171) p. 152, pl. v : DONCIEUX (81) p. 110 : MIQUEL (215) p. 19. *E. suessi* ; REDLICH (266) p. 343. *E. leymeriei* ; DONCIEUX (81) p. 110 : MIQUEL (215) pp. 19, 24. *E. morgadesi*, vide *Echinanthus ibericus*. *E. osiris* ; FOURTAU (98) p. 132. *E. perrieri* ; CISNEROS (54) p. 530. *E. prunus* n. sp., Eocene of Fumane, Italy ; AIRAGHI (6) p. 7, pl. i. *E. scutiformis* ; SAVIN (286) p. 168. *E. studjieri* ; CISNEROS (54) p. 529. *E. yoshiwarae* Loriol ; YABE (346) p. 290.

Echinolampidae [melius *Echinolampadinae*] diagnosed as sub-fam. [sic.] of *Echinobrissidae* with tribes *Faujasinæ*, *Echinanthinæ*, and *Plesiolampinæ* [melius *Plesiolampadinae*], all diagnosed ; LAMBERT (171) p. 141.

Echinometra oblonga, vide *Mortensenia*, *Echinometra mathaei* (Blainv.) distinct from *E. oblonga* ; DOEDERLEIN (78) p. 624.

Echinometridæ n. g., vide *Mortensenia*.

†*Echinopsis elegans* ; DONCIEUX (81) p. 103 : LAMBERT (171) p. 134 : MIQUEL (215) p. 19.

†*Echinospatagus inflatus*, vide *Physaster*.

Echinothrix turcarum ? ; BOUVIER (37).

Echinus acutus ; HALLEZ (128) p. 1 : distrib. ; DOEDERLEIN (79) p. 379 : cum. varr. *microstoma* et *norvegicus* ; KEMP (152) p. 197. *E. affinis* ; SCHMIDT (291) p. 24 : distrib. ; DOEDERLEIN (79) p. 379. *E. alexandri* ; SCHMIDT (291) p. 24 : distrib. ; DOEDERLEIN (79) p. 378. *E. elegans* ; NORDGAARD (230) pp. 160, 240 : SCHMIDT (291) p. 23 : distrib. ; DOEDERLEIN (79) p. 378. *E. esculentus* ; HØRRING (142) pp. 185, 189 : KEMP (152) pp. 182, 197 : NOBRE (229) p. 134 : NORDGAARD (230) p. 160 : WOODLAND (344) : distrib. ; DOEDERLEIN (79) p. 379 : see further under II, F, viii. *E. fueginus* n. sp. ; PHILIPPI (255). *E. gilchristi*, probably syn. of *E. hirsutus* ; DOEDERLEIN (79) p. 392. *E. gracilis* ; KEMP (152) p. 199. *E. hirsutus* n. sp., 70-500 m., off C. of Good Hope ; DOEDERLEIN (78) p. 623, no fig. *E. magellanicus*, vide *Notechinus*. *E. margaritaceus* ; HODGSON (141). *E. microtuberculatus* ; BAGLIONI (12c) : PETER (251) : see further under II, F, viii. *E. miliaris* ; KEMP (152) pp. 181, 206 : WOODLAND (344) p. 321. †*E. miliaris* compared with *E. microtuberculatus* ; CHOFFAT (52) p. 748 : this not congeneric with *E. esculentus* and *E. melo*, LAMBERT in Review. †*E. neglectus* ; NEWTON (225). *E. norvegicus* ; NORDGAARD (230) p. 160. *E. sphaera* ; COLGAN (61) p. 212. *E. tenuispinus*, measurements ; KEMP (152) pp. 183, 197, and fig.

†*Enallaster*, diagnosis ; SAVIN (286) p. 125. *E. couloni* ; op. cit. p. 127. *E. criminensis* (p. 42), *E. delgadoi* (pp. 12, 15, 42), *E. lepidus* (p. 30) ; CHOFFAT (51). *E. oblongus* ; SAVIN (286) p. 125. *E. texanus* ; STANTON in CRAGIN (64) p. 31.

†*Eolampas toucasi* ; DONCIEUX (81) p. 107.

†*Eosalenia* n. g. of *Pedininæ* with genotype *E. miranda* n. sp., Oxfordian of Joyeuse, Ardèche, holotype in Colln. Gevrey ; SAVIN (286) p. 311, pl. ii.

†*Epiaster*, diagnosis ; SAVIN (286) p. 120. *E. catumbellensis* ; CHOFFAT (50) p. 58. *E. crassissimus* (p. 120), *E. distinctus* (p. 121) ; SAVIN (286). *E. herberti* ; DE STEFANO (75) pp. 350, 357. *E. polygonus* ; SAVIN (286) p. 121. *E. trigonalis* and cf. ; HITZEL (140). *E. whitei* ; STANTON in CRAGIN (64) p. 31.

Escheria Merian non Heer, vide sub *Linthia*.

†*Euspatangus* preferred to *Eupatagus* and *Brissoides* (q. v.) ; FOURTAU (97) p. 603. *E. blanckenhorni* (p. 36), *E. cairensis* (p. 52), *E. formosus* ? (p. 36) ; BEADNELL (24). *E. formosus* ; SCHUBERT (293) p. 168. *E. libycus*, vide *Perispatangus*. *E. ornatus* ; DOUVILLÉ (83) pp. 17, 18,

21, 27, 46. *E. aff. veronensis*; SCHUBERT (294) p. 280. *E. ventrosus* n. sp., Eocene, La Antigua Ciudad de Jespus, Catalonia; LORIOL (195) p. 128, pl. ix.

Fujasinae, vide sub *Echinolampidae*.

†*Fibularia*, Lambert's interpretation of this as = *Echinocyamus*, and vice versa, rejected; LORIOL (195) p. 130: maintained; LAMBERT in Review. *F. voeltzkowi* n. sp., Eocene, Makamby, Madagascar, type at Strassburg; TORNQUIST (316) p. 328, pl. xlvi.

†*Fibulina* n. g. of *Fibulariidae* with genotype, *F. gracilis* n. sp., Eocene, Makamby, Madagascar,—type at Strassburg; TORNQUIST (316) p. 327, pl. xlvi.

†*Fourtaunia* and *F. santamariai*, discussed, referred to *Hypsospatangidae*; FOURTAU (97) pp. 608, 613.

†*Galerites*, vide etiam *Conulus* and *Echinoconus*. *G. cf. abbreviatus*; TOULA (317) p. 362. *G. albogalerus*; TREACHER (319) p. 156: WHITE (338) pp. 468, 470, 476, 487. *G. cf. rhomagensis*; TOULA (317) p. 362. *G. cf. rotula* and *G. subcexus*; TOULA (318) p. 321.

†*Galeropygus agariciformis*; THÉVENIN (313) pp. 63, 72.

†*Gauthieria radiata* (Sorignet sub *Cyphosoma*) test and radioles; VALETTE (324) p. 36, figg.

†*Glypticus*, diagnosis; SAVIN (286) p. 198. *G. hieroglyphicus*; KILIAN (156) pp. 806, 818: MAIRE (206) p. 231: MAURY (210) p. 583. *G. sulcatus*; MAIRE (206) p. 232: SAVIN (286) p. 199.

†*Goniopygus*, diagnosis; SAVIN (286) p. 200. *G. delphinensis*; DAVEY (66) p. 33: SAVIN (286) p. 202, pl. i. *G. innesi*; FOURTAU (98) p. 127. *G. lamberti* n. sp., Santonian near Martigues, B. du Rhone, radioles only (p. 307, pl. i), *G. loryi* (p. 203), *G. noguesi* (p. 204); SAVIN (286). *G. peltatus*; op. cit. p. 201, pl. viii: anal plates resemble *Arbaciella*; LORIOL (195) p. 137, pl. ix: var. *intracatus*; CHOFFAT (51) pp. 9, 10. *G. peroni*, radioles deser. (p. 127, pl. i), *G. cf. royanii* Thomas and Gauthier 1889 is *G. innesi* (p. 127); FOURTAU (98).

†*Grasia*, diagnosis, *G. elongata*; SAVIN (286) p. 148.

Gymnechinus gravieri n. sp., G. of Tadjourah, Red Sea; KOEHLER (161).

†*Gymnocidaris* (*Asterocidaris*) *minor*; KILIAN (156) p. 760.

†*Helicodiadema fragile*, vide sub *Pseudodiadema*.

Hemaster, diagnosis; SAVIN (286) p. 118. †*H. batnensis*; DE STEFANO (75) pp. 350, 357. †*H. bufo*; SAVIN (286) p. 119. *H. cavernosus*; HODGSON (141). †*H. cf. cenomanensis*; HAYDEN (132) p. 164. *H. expurgitus*, S. of Iceland; MORTENSEN (220) p. 243. †*H. forbesi*, figd.; ROGERS (279) p. 324. †*H. fournieri*; FOURTAU (98) p. 129. †*H. (Periaster) fourtau*” Mayer-Eymar, vide *Schizaster foveatus*. †*H. gracilis* et aff. *gracilis*; DE STEFANO (75) pp. 350, 357, pl. viii. †*H. minimus*; HITZEL (140) and ?: SAVIN (286) p. 118: *minimus*; YOUNG (347) p. 217. *H. ovatus*; AIRAGHI (8) p. 216. *H. pullus*, vide *Linthia joannisboehmi*. †*H. ricordeau*, vide sub *Toxaster ricordaei*. †*H. rouchensis*; BEADNELL (22) pp. 19, 21. *H. scutiger*; CHOFFAT (51) p. 32.

†*Hemicidaris*, diagnosis; SAVIN (286) p. 214. *H. alpina*; ROTHPLETZ (281) pp. 55, 57. *H. caprensis* n. sp., radioles; AIRAGHI (7) p. 87, pl. i. *H. cayluxensis*; THÉVENIN (313) p. 62. *H. crenularis*; MAIRE (206) p. 228: SAVIN (286) p. 216. *H. gevreyi* n. sp., Bathonian of Andelarre, Hte. Saône; LAMBERT & SAVIN (286) p. 310, pl. ii. *H. gresslyi* (p. 87), *H. icaunensis* (p. 76); THÉVENIN (313). *H. intermedia*; MAIRE (206) p. 228. *H. lorteti* (Cott. sub *Cidaris*) (p. 215), *H. pseudo-hemicidaris* (p. 216); SAVIN (286). *H. ruthenensis*; THÉVENIN (313) p. 76. *H. undulata*; MAIRE (206) p. 229. *H. zeguellensis*; PERNINQUIÈRE (250).

†*Hemidiadema rugosum*; PELLAT (245).

- +*Hemipedina*, diagnosis, *H. gevreyi* n. sp., Hauterivian, Malleval, Isère ; LAMBERT & SAVIN (286) p. 219, pl. iii.
- +*Heteractis*, rejected ; FOURTAU (98) p. 125. *H. heteroporus* ; DONCIEUX (81) p. 100.
- +*Heterocidaris*, diagnosis (p. 223), *H. trigeri* (p. 224, pl. iv) ; SAVIN (286).
- +*Heteroclypus* :—*H. elegans* (p. 216), *H. semiglobus* (p. 214, figg.) ; AIRAGHI (8).
- +*Heterospatangus* n. g. of *Spatangidae prymnodesminae* (*Euspatangidae*), with genotype *Macropeustes lefebvrei* de Lor. (p. 606), *H. gauthieri* n. sp., Mid. Eocene, Mokattam, holotype Mus. Hist. Nat. Paris (p. 607, pl. i) ; FOURTAU (97).
- +*Holaster*, diagnosis ; SAVIN (286) p. 130. *H. sp.* ; FAVRE (91) p. 100. *H. dombensis* ; CHOIFFAT (50) pp. 58, 59. *H. grasi* ; SAVIN (286) p. 26. *H. indicus* ; ROGERS (279) p. 326. *H. inflatus* vide *Physaster*. *H. intermedius* ; SAVIN (286) p. 131. *H. laevis* ; HITZEL (140) ; JUKES-BROWNE (150) pp. 24, 25 ; ROTHPLETZ (281) pp. 80, 81 : SAVIN (286) p. 132. *H. latissimus* ; ROTHPLETZ (281) p. 80. *H. nodulosus* ; SAVIN (286) p. 135. *H. perezi* ; op. cit. p. 134 : HITZEL (140). *H. placenta* ; TREACHER (319) p. 158 : YOUNG (347) p. 217. *H. planus* ; l. c. *H. prestensis* ; SAYN (287) p. 622 : in Barremian ; LAMBERT (170) p. 843. *H. subglobosus* ; SAVIN (286) p. 134 : ROTHPLETZ (281) p. 81. *H. suborbicularis* ; op. cit. p. 80.
- +*Holectypus*, diagnosis ; SAVIN (286) p. 183. *H. ? sp.* ; CRAGIN (64) p. 35. *H. corallinus* ; MAIRE (206) p. 222 ; SAVIN (286) p. 184. *H. depressus* ; op. cit. p. 183 : LISSAJOUS (183) p. 697 : MAIRE (206) p. 222. *H. drogiacus* ; l. c. *H. macropygus* ; LAMBERT (170) p. 841 : SAVIN (286) p. 185 : SAYN (287) p. 622. *H. neocomiensis* (p. 186), *H. orificiatu* (p. 183) ; SAVIN (286).
- +*Hologlyptus* Pomel, rediagnosed, genotype *Glypticus kaufmanni* Cott. non de Lor. ; *H. douvillei* n. sp., Kimmeridgian, Tatahouine, Tunis ; LAMBERT (172) p. 573, pl. xxii.
- +*Hyboclypeus* :—*H. gibberulus* (p. 697), *H. ovalis* (p. 695) ; LISSAJOUS (183). *H. wrighti* ; MAIRE (206) p. 221.
- Hygrosoma aethiopicum* n. sp., 693–863 m. off E. Africa ; DOEDERLEIN (78) p. 621, no fig.
- Hypsiechinus coronatus* ; DOEDERLEIN (79) p. 378.
- +*Hypsopatangus* (seu *Hypspatagus*) rediagnosed with fresh genotype *H. ammon*, the original genotype having proved to be a *Trachyspatangus*, perhaps comprises *H. fischeri* (de Lor.) (p. 608), *H. sp.* Gregory (see Zool. Rec. 1898) is a *Plesiospatangus cotteai* (p. 612) ; FOURTAU (97). *H. antiquus* ; DONCIEUX (81) p. 103. *H. hispaniae*, vide *Perispatangus*.
- +*Iluronia sicardi* n. sp., Lutetian, Caunes (Aude) and Minerve (Hérault) ; LAMBERT (171) p. 148, pl. v : DONCIEUX (81) p. 108 : MIQUEL (215) p. 19.
- Infularster excentricus* ; TREACHER (319) p. 158.
- +*Isaster benguennensis* ; CHOIFFAT (50) p. 58.
- +*Isopeustes munieri* Seunes, is *Cyclaster* ; AIRAGHI (6) p. 9.
- +*Laganum depressum* ; MAWSON (211) pp. 414, 479.
- +*Lambertechinus* discussed ; FOURTAU (98) p. 126.
- Lumprechinus* n. g. of *Cidaridae* with genotype *L. nitidus* n. sp., 500 m., Agulhas Current ; DOEDERLEIN (78) p. 622, no fig.
- +*Leiopedina tallavignesi* ; SCHUBERT (293) p. 168, & (294) p. 280.
- Linthia* Desor 1853, synn. : *Escheria* Merian 1853 non Heer, *Periaster* d'Orb. 1854, *Desoria* Gray 1855 non Cott., *Protenaster* Pomel 1883, *Tripylus* Pomel 1883 non Philippi, and *Plesiaster* Pomel 1887 non 1883 (see *Pseudobrissus*) : discussed, may prove syn. of *Tripylus* Philippi, species placed in six groups ; LAMBERT (171) p. 154.

- † *Linthia* sp., Nigeria; LAPPARENT (177). *L. aricensis*; DONCIEUX (81) p. 105. *L. atacica* n. sp., Lutetian, Caunettes-Hautes, Aude; LAMBERT (171) p. 158, pl. v: DONCIEUX (81) p. 105. *L. cavernosa*, incl. *L. aschersoni* and *L. esnehensis*; FOURTAU (98) p. 139. *L. ducroqui*; LAPPARENT (176). *L. insignis*; DONCIEUX (81) p. 104: variations in fasciole; LAMBERT (171) p. 156. *L. joannii boehmi* Oppenb. identical with "Hemiasaster pullus Stol. & H. aff. cristatus Stol." of C. Burckhardt, 1901; WILCKENS (341) p. 139. *L. locardi* Tournouer is a *Schizobrissus*; LAMBERT (171) p. 156. *L. orbignyi*; DONCIEUX (81) p. 105. *L. roussetti*; l. c.: LAMBERT (171) p. 159: MIQUEL (215) pp. 24, 25. *L. savini*; DONCIEUX (81) p. 105: MIQUEL (215) p. 24. *L. scaraboides*; REDLICH (266) p. 342.
- † *Lorioella* n. g. [? of Pygasteridae] with genotype *Cidaris ludovicii* Menegh., Mid Lias; FUCINI (102).
- † *Lovenia lorioli* Cott is *Hemipatagus*; LAMBERT (173) p. 884.
- Loveniidae* [sic] a subfam. of *Prospatangidae*, with tribes *Platybrissinae*, *Hypsopataginae*, *Maretinae*, *Eupatuginae*, *Breyninae*; LAMBERT (171) p. 162.
- † *Macropneustes* only represented in Egyptian Eocene by one indeterminable specimen; FOURTAU (97) p. 610. *M. bertrandii* n. sp., Lutetian, Minerve, Hérault; LAMBERT (171) p. 161, pl. v: DONCIEUX (81) p. 104: MIQUEL (215) p. 20. *M. brissoides*?; SCHUBERT (293) p. 168. *M. crassus*, vide *Plagiopneustes*. *M. deshayesi*; REDLICH (266) p. 343. *M. meneghinii*; DOUVILLÉ (83) p. 46. *M. schweinfurthi* Mayer-Eymar is a *Pericosmus spatangooides*; FOURTAU (98) p. 134. *M. similis* Mayer-Eymar, unintelligible; FOURTAU (97) p. 610.
- † *Magnosia*, diagnosis, *M. decorata* (p. 194), *M. globulus* (p. 195); SAVIN (286). *M. nodulosa*; l. c.: MAIRE (206) p. 232. *M. pulchella*; SAVIN (286) p. 196.
- † *Mareta*:—*M. quebardi* n. sp., Burdigalian, Gattières Alpes-Maritimes; LAMBERT (173) p. 882, pl. lix. *M. saccoi* n. sp., Miocene, C. Dogana, near S. Maria Tiberina, Umbria; AIRAGHI (5) p. 53, pl.
- † *Megapneustes*, ? prymnade or prymnodesmian; *M. grandis* holotype is prymnade, but other specimens are prymnodesmian; *M. lorioli* is prymnade always; *M. sickenbergi* uncertain; FOURTAU (97) p. 609.
- Megapneustidae* n. fam. [?] for *Megapneustes*, *Perispatangus*, *Plagiopneustes*, and *Plagiobrissus*; FOURTAU (97) p. 612.
- Melitta pentapora*; CLARK (55) p. 8. *M. testudinata*; GRAVE (119).
- † *Melonites*:—*M. crassus*, *M. multiporus*; ULRICH (321) p. 33.
- † *Mesodiadema*:—*M. lamberti* n. sp., Middle Lias, Rocchetta near Arcevia, Italy (pl. i). *M. marconissae* is Toarcian; AIRAGHI (6) p. 2.
- Mesospatangidae*; LAMBERT (171) p. 153: said to be n. subfam. [sic] of *Brissidae*; LAMBERT in Review.
- † *Metaporhinus*, diagnosis; SAVIN (286) p. 137. *M. convexus*; CISNEROS (53) p. 299: REMES (273): SAVIN (286) p. 138. *M. gueymardi*; op. cit. p. 139.
- † *Micraster*:—*M. arenatus*; MAURY (210) p. 587. *M. breviporus*; FLEGEL (94) & (95): GOSSELET (116) pp. 18, 20, 42: (?) ROESSINGER (278) p. 437. *M. cf. brevis*; LAMBERT (169) p. 94. *M. coranguinum*; GOSSELET (116) p. 20: LAMBERT (169) pp. 92, 95: WHITE (338) pp. 468, 470, 473 & (?) 472: YOUNG (347) p. 216: young minutely descr.; VALETTE (324) p. 39, figg.: var. *lattior*; WHITE (338) p. 468: var. *rostratus*; YOUNG (347) p. 198. *M. cor-bovis*; TREACHER (319) p. 157: YOUNG (347) p. 217. *M. cortestudinarium*; FLEGEL (94): GOSSELET (116) pp. 18, 20, 21, 42: TREACHER (319) p. 158. *M. decipiens*; GOSSELET (116) p. 18: LAMBERT (169) p. 92. *M. icaunensis*; op. cit. pp. 91, 94. *M. leskei*; l. c.: GOSSELET (116) p. 18: MAURY (210) p. 586: YOUNG (347) p. 217. *M. praecursor*; TREACHER (319)

- p. 158 : YOUNG (347) pp. 196, 216 : var. *cor-testudinarium* ; l. c. *M. recklinghausenensis* (Schlueter sub *Diplodetus*), descr. ; WEGNER (333) pp. 123, 125, 150, pl. vii.
- +*Micropsidium* :—*M. gauthieri* ; DONCIEUX (81) p. 101. *M. pegoti* ; l. c. : MIQUEL (215) pp. 20, 24. *M. savini* ; DONCIEUX (81) p. 102.
- +*Micropsina baudoni* is a *Circopeltis* ; LAMBERT (171) p. 136.
- +*Micropsis*, diagnosis ; SAVIN (286) p. 308. *M. lusseri* ; CISNEROS (54) p. 530. *M. savini* n. sp., Santonian near Martigues, B. du Rhone ; LAMBERT in SAVIN (286) p. 308, pl. ii. *M. stachei* ; SCHUBERT (293) p. 168.
- +*Miotoxaster*, diagnosis ; SAVIN (286) p. 128. *M. collegnoi* ; l. c. : PELLAT (244 & 245) : SAYN (287) p. 622 : compared with *Toxaster ricordeaui* (q.v.) and var. *Leymeriei* ; LAMBERT (170) p. 846. *M. exilis* ; CHOFFAT (51) pp. 27, 30.
- Moera atropos*, see II, F, viii ; GRAVE (119).
- +*Monodiadema*, discussed ; LAMBERT (172) p. 570. *M. cotteau* ; DOUVILLE (84) : PERVINQUIÈRE (250) : structure of ambulacra ; LAMBERT (172) p. 571, pl. xxii.
- Mortensenia* n. g., with genotype *Echinometra oblonga* Blainville ; DOEDERLEIN (78) p. 623.
- Neospatangidae* [sic], n. subfam. of *Brissidae*, distinguished from *Mesospatangidae*, divided into tribes *Opissasterinae*, *Schizasterinae*, *Prenasterinae*, *Pericosmidae* [sic], *Brissopsinae*, *Macropneustinae* ; LAMBERT (171) p. 153.
- +*Noetlingia monteili*, provenance ; LAPPARENT (176).
- Notechinus* n. g., with genotype *Echinus magellanicus* Philippi ; DOEDERLEIN (78) p. 623.
- Nucleolidae* ; LAMBERT (171) p. 141 : said to be n. subfam. of *Echinobrissidae* ; LAMBERT in Review [melius *Nucleolitinae*].
- +*Nucleolites* (vide etiam *Echinobrissus*) :—*N. chaperi*, vide sub *Nucleopygus*. *N. grignonensis* vide *Plagiopygus*. *N. cf. olfersi* ; TOULA (318) p. 321.
- +*Nucleopygus*, diagnosis (p. 160), *N. chaperi* (Cott. sub *Nucleolites*) (p. 162), *N. roberti* (p. 161) ; SAVIN (286).
- +*Opissaster* discussed, *O. fourtau* Lambert [Feb. 1902], considered syn. of *Ditremaster nux*, var. *aegyptiacus* Gauthier [Nov. 1902] ; FOURTAU (98) p. 134.
- Orechinus* n. g., with genotype *Trigonocidaris monolini* A. Agass. ; DOEDERLEIN (78) p. 622.
- +*Oriolampus* Mun. Ch., olim *Neolampus*, with genotype *Amblypygus michelini* Cott, slight distinction from *Plesiolampus* ; LAMBERT (171) p. 149 : is syn. of *Plesiolampus* ; LAMBERT in Review. *O. michelini* ; CISNEROS (54) p. 529 : DONCIEUX (81) p. 102 : DOUVILLE (83) p. 41 : LAMBERT (171) p. 150 : MIQUEL (215) p. 20. *O. rousseli* ; op. cit. p. 24 : DONCIEUX (81) p. 107 : added notes ; LAMBERT (171) p. 151.
- Orthocidarinae*, subfam. suppressed, *Orthocidaris* being a Pedinid allied to *Gymnodiadema* ; LAMBERT (171) p. 132.
- +*Orthocidaris*, diagnosis, *O. inermis* ; SAVIN (286) p. 218.
- +*Orthopsis*, diagnosis ; SAVIN (286) p. 222. *O. sp. ind.* ; AIRAGHI (7) p. 90, pl. i. *O. repellini* ; CHOFFAT (51) p. 9 : SAVIN (286) p. 222.
- +*Palaeochinus quadrirserialis* J. Wr. holotype was from Ballynabointra, $\frac{1}{2}$ miles W. of Middleton, Cork ; LAMPLUGH (174) p. 29.
- Palaeolampus chuni* n. sp., 371 m. Siberut Str., off Sumatra, no fig., *P. crassa*, *P. sumatrana* n. sp., ibid., no fig. ; DOEDERLEIN (78) p. 624.
- Paracentrotus agulhensis* n. sp., 500 m., Agulhas Current ; DOEDERLEIN (78) p. 623, no fig. *P. lividus* (vide etiam sub *Strongylocentrotus* et *Toxopneustes*) ; KIERNIK (154) & (155) : see also under II, F, viii,

- var. nov. *diffusa* et *rufocincta*** based on pigment of ovum; GARBOWSKI (107) p. 601, pl. xvii.
- †*Paracidarais* (vide etiam sub *Cidaris*), diagnosis (p. 267), *P. bathonica* (p. 268), *P. blumenbachii* (p. 270), *P. spinulosa* (p. 268), *P. zschokkei* (p. 269); SAVIN (286).
- Parechinus* (vide etiam sub *Echinus* et *Psammechinus*):—*P. microtuberculatus*; KIERNIK (154) & (155): see further under II, F, viii, vide etiam *Psammechinus cupreus*, *P. miliaris* distrib.; DODERLEIN (79) p. 378, see further under II, F, viii.
- †*Parmulechinus* n. g., pro *Stenaster* Lamb. non Bill., q. v.; LAMBERT in Review of LAMBERT (171) p. 63, Jan. 1906.
- †*Pedina*, diagnosis; SAVIN (286) p. 217. *P. gervillei*; MAIRE (206) p. 232. *P. sublaevis*; op. cit. p. 233: SAVIN (286) p. 217.
- Pedininae*, n. g. *Eosalenia* q. v.
- †*Peltastes*, diagnosis; SAVIN (286) p. 207. *P. clathratus*; WOLLEMANN (343). *P. lardyi*; PERON (248) pp. 365, 369, 375: DAVEY (66) p. 32. *P. stellatus*; l. c.: SAVIN (286) p. 208. *P.*, cf. *stellatus*; PERON (248) p. 369. *P. studeri*; HITZEL (140): SAVIN (286) p. 208. *P. valleti*; op. cit. p. 207. *P. wrighti*; DAVEY (66) p. 31.
- Periaster* d'Orb., vide sub *Linthia*.
- †*Pericosmus*:—*P. nelsoni* M'Coy, probably a *Peribrissus*; LAMBERT (171) p. 158. *P. spatangoides*; FOURTAU (98) p. 133.
- †*Perispatangus* n. s.-g. of *Euspatangus*, with genotype *E. libycus* de Lor., and comprising *Hypsospatangus hispaniae* Lamb.; FOURTAU (97) p. 605.
- Phormosoma adenicum* n. sp., 1469 m., G. of Aden, no fig., *P. indicum* n. sp., 463–977 m. off W. Sumatra and E. Africa, no fig.; DOEDERLEIN (78) p. 621. *P. placenta*; KEMP (152) pp. 197, 183: SCHMIDT (291) p. 23: et var. *sigsbeei*, distrib.; DOEDERLEIN (79) p. 376.
- †*Phyllobrissus*, diagnosis, with note by LAMBERT; SAVIN (286) p. 163. *P.* sp. non-descri. aff. *grosslyi*; DOUVILLE (84). *P. jourdyi* n. sp., Kimmeridgian, Tatahouine, Tunis; LAMBERT (172) p. 574, pl. xxii. *P. kiliani*; PELLAT (245). *P. neocomiensis*; LAMBERT (170) p. 841: SAYN (287) p. 622; SAVIN (286) p. 164. *P. nicoleti* and *P. renaudi*; l. c.
- †*Phymosoma* (vide etiam *Cyphosoma*), diagnosis (p. 204), *P. loryi* (p. 205); SAVIN (286).
- †*Physaster* maintained, *P. inflatus* (d'Orb.) discussed, from Senegal; LAMBERT in PERON (247).
- †*Pithodia* Pomel, genotype *Discoidea cylindrica*; BATHER (19) p. 148.
- †*Plagiochasma grasanus* (d'Orb.) Pomel, made *Clitopygus grasi*; SAVIN (286) p. 159.
- Plagiocidaris*, err. typ. pro *Plegiocidaris*; KILIAN (156).
- †*Plagiopneustes* n. g. of *Spatangidae* *Prymnodesminae*, with genotype *Macropneustes crassus* Desor; FOURTAU (97) p. 609.
- †*Plagiopygus*, Tertiary spp. usually called *Pygorhynchus*, genotype is *Nucleolites grignonensis* Defr.; LAMBERT (170) p. 843, footnote: LAMBERT (171) p. 146. *P. daradensis* n. sp., Mid. Eocene, Balol, Senegal; LAMBERT in MEUNIER (212) p. 63. *P. gauthieri*; DONCIEUX (81) p. 102: MIQUEL (215) p. 20: n. var. *minor*, Lower Lutetian, Aude; LAMBERT (171) p. 147. *P. savini* (Cott. sub *Pygorhynchus*); op. cit. p. 148: DONCIEUX (81) p. 109: MIQUEL (215) pp. 20, 25.
- †*Plegiocidaris* (vide etiam sub *Cidaris*), diagnosis (p. 257), *P.* sp. non-descri., Upper Aptien, Isère, radioles (p. 267, pl. vii), *P. alpina* (p. 263), *P. cf. alpina*, interambulacrals (p. 263, pl. iii), *P. charmassei* (p. 257), *P. coronata* (p. 259); SAVIN (286). *P. cucumifera*; op. cit. p. 257: KILIAN (156) p. 743. *P. falsani*, interambulacrals and radioles (p. 312, pl. vii), *P. friburgensis*, radioles (p. 264, pl. iv); SAVIN (286).

- P. gevreyi* n. sp., Hauterivian, St. Pierre-de-Chérennes, Isère, radioles only; LAMBERT & SAVIN (286) p. 265, pl. vi. *P. gibberula* (Ag. sub *Cidaris*), radioles; SAVIN (286) p. 314, pl. iv. *P. glandifera*; op. cit. p. 260: KILIAN (156) pp. 806, 818. *P. laeviuscula* (p. 258), *P. lineolata*, radioles (p. 265, pl. vii), *P. locardi* (p. 258), *P. loryi* (p. 262); SAVIN (286). *P. mattheyi*; KILIAN (156) p. 781. *P. meridanensis*, radiole (p. 262, pl. iv), *P. propinquua* (p. 261), *P. punctata* (p. 266), *P. spinigera*, radioles (p. 266, pl. vii); SAVIN (286). *P. spinulosa* and *P. zschokkei*; KILIAN (156) p. 743.
- Plesgiocidaris*; Lambert in Review of KILIAN (156), Rev. paleozool. x, p. 61: err. typ. pro *Plegiocidaris*.
- Plesiaster* Pomel, vide sub *Linthia* et *Pseudobrissus*.
- Plesiolamp[ad]inae*, vide sub *Echinolampidae*.
- +*Plesiolampas*, distinctness from *Oriolampas* questioned; LAMBERT (171) p. 150.
- +*Plesiospatangus*, the genotype *P. cotteani* redescr.; FOURTAU (97) p. 611, pl. i.
- Plexechinus hirsutus* n. sp., Denmark Straits, N. Atlantic, 450–1300 fm., *P. nordenskiöldi* n. sp., Shag Rocks Bank, Antarctic, 160 m.; MORTENSEN (220) p. 242, no figg.
- +*Pliolampas*:—*P. aremoricus* (p. 50, pl.), *P. camerinensis* (p. 51); AIRAGHI (5) pl. *P. gourdoni*, syn. of *Echinanthus arizensis* Cott.; LAMBERT (171). *P. silvestrii* n. sp., Miocene, C. Dogana, near S. Maria Tiberina, Umbria (p. 51), *P. vasalli* [=vassali] (Wright sub *Pygorhynchus*) (p. 49); AIRAGHI (5) pl. *P. vilanovaae*; CISNEROS (54) p. 529.
- Podocidaris prionigera* and *P. scutata*, vide *Pygmaeocidaris*.
- +*Polycidaris*, diagnosis (p. 270), *P. collenoti*, test descr., and *P. legayi* (p. 271); SAVIN (286).
- +*Polydiadema*, diagnosis (p. 232), *P. grasi* (Desor, sub *Diadema*) (p. 233); SAVIN (286). *P. rhodani*; l. c.: HITZEL (140).
- Porocidaris* (vide etiam sub *Cidaris*):—+*P. granulosa*; KILIAN (156) p. 818. *P. purpurata*; SCHMIDT (291) p. 23: distrib.; DOÉDERLEIN (79) p. 376. +*P. schmideli*; HAWELKA (131) p. 117: SCHUBERT (293) pp. 165, 168. +*P.*, cf. *schmideli*; SCHUBERT (294) p. 280. +*P. serrata*; DOUVILLE (83) p. 50.
- +*Porpitella*:—*P. concava*; LAMBERT (171) p. 138. *P. doncieuxi* n. sp., Lower Lutetian, near Saint-Chinian, Hérault; op. cit. p. 136, pl. v: DONCIEUX (81) p. 111: MIQUEL (215) p. 18. *P. fibularoides* distinguished from *P. hayesiana*, probably incl. *Scutellina calviumontana* Cott. (p. 138), *P. porpita*, a fragment figd. by Tournouer is refd. to *Stenaster labriei* (q. v.) (p. 140); LAMBERT (171).
- Pourtalesia jeffreysi*, distrib.; DOEDERLEIN (79) p. 385. *P. miranda*; KEMP (152) p. 206: (?); SCHMIDT (291) p. 24. *P. paradoxa* n. sp., S. of Iceland, 843–912 fm.; MORTENSEN (220) p. 243, no fig. *P. phyle*; KEMP (152) p. 206. *P. wandeli* n. sp., Davis Str., N. Atlantic, 845–1715 fm.; MORTENSEN (220) p. 242, no fig.
- +*Prenaster*:—*P. alpinus*; DONCIEUX (81) p. 106. *P. desori*; CISNEROS (54) p. 529.
- Prionechinus* distinguished from *Arbacina*; CHECCHIA (49).
- Protenaster* Pomel, vide sub *Linthia*.
- +*Protocidaris* sp. radiole; SMYČKA (303) p. 60.
- +*Protocytamus* Gregory, vide *Discoidea*.
- Psammechinus* (vide etiam sub *Echinus*), diagnosis (p. 196), +*P.* sp. (p. 197, pl. viii); SAVIN (286). *P. cupreus*, holotype in Senckenberg Mus. is not syn. of *Notechinus magellanicus*, but appears to be *Parechinus microtuberculatus*; DOEDERLEIN (78) p. 623. +*P. excavatus* (Leske sub *Echinites*); LORIOL (195) p. 131, pl. ix. *P. microtuberculatus*; KRAHELSKA (168). +*P. miliaris*; CHOIFFAT (52).

- †*Psephechinus*, diagnosis, & *P. vacheyi*; SAVIN (286) p. 190, pl. i.
- †*Pseudobrissus* n. g. of *Brissidae*, genotype *Brissus corsicus* Cott., = *Plesiaster* Pomel 1887 pars non 1883; LAMBERT (171).
- †*Pseudocidaris*, diagnosis; SAVIN (286) p. 212. *P. clunifera*; CHOIFFAT (51) pp. 9, 10, 11, 21, 36 & (?) pp. 27, 36; PARONA (242) p. 66; TOULA (317) p. 360: radioles; SAVIN (286) p. 213, pl. ii. *P. cf. clunifera*; CISNEROS (53) p. 300: radioles; AIRAGHI (7) p. 88, pl. i. *P. crispicans*, radiole; AIRAGHI (7) p. 89, pl. i. (?) *P. ellenbecki* n. sp., Kimmeridgian, Atschabo, Somaliland, radioles only; DACQUÉ (65) p. 124, pl. xiv. *P. gauthieri* n. sp., Kimmeridgian, Tatahouine, Tunis, radioles previously referred by Gauthier to *Hemicidaris zeguelensis*; LAMBERT (172) p. 570, pl. xxii. *P. mammosa*; THÉVENIN (313) p. 87. *P. ovifera*; CISNEROS (53) p. 300. *P. quenstedti*; MAIRE (206) p. 228. *P. thurmanni*; CISNEROS (53) p. 300: SAVIN (286) p. 214.
- †*Pseudodiadema*, diagnosis; SAVIN (286) p. 228. *P. areolatum*; ROTHFLETZ (281) p. 50. *P. aroviense*; MAIRE (206) p. 229. *P. brongniarti*; DAVEY (66) p. 34. *P. carthusianum*; SAVIN (286) p. 229. *P. cotteri* n. sp., Aptien, Ribafria, Portugal; LORIOL (195) p. 136, pl. ix. *P. dupini*; PERON (248) p. 369. *P. duplicatum* (p. 229), *P. florescens* (p. 230); MAIRE (206). *P. (Helicodiadema) fragile*; WHITE (328) pp. 470, 487. *P. cf. querangeri*; CHOIFFAT (51) p. 27. *P. malbosii*; BRIVES (42) p. 87. *P. mammillatum*; MAIRE (206) p. 231. *P. cf. mammillatum*; THÉVENIN (313) p. 87. *P. michelini*; WOLLEMANN (343). *P. picteti*; PERON (248) p. 365. *P. pidancei*; MAIRE (206) p. 231. *P. priscum*; LEE (178) p. 84. *P. pseudodiadema*; MAIRE (206) p. 230: MAURY (210) p. 583. *P. rotulare*; DAVEY (66) p. 33. *P. scruposum* (pp. 7, 35, 36). *P. sculptile* (pp. 11, 27, 29, 30); CHOIFFAT (51). *P. superbum*; AEBERHARDT (1) p. 442. *P. tetragramma*; MAIRE (206) p. 230. *P. uniforme* discussed; SAVIN (286) p. 228. *P. variolare*; DAVEY (66) p. 33. *P. wrighti*; LISSAJOUS (183) p. 697.
- †*Pseudosalenia*, diagnosis (p. 211). *P. aspera* (p. 212); SAVIN (286).
- †*Pygaster*, diagnosis & *P. truncatus*; SAVIN (286) p. 187. *P. umbrella*; MAIRE (206) p. 222.
- Pygasteridae*, n. g. vide *Lorioella*.
- Pygaulidae*; LAMBERT (171) p. 141: said to be n. subfam. of *Echinobrissidae*; LAMBERT in Review.
- †*Pygaulus*, diagnosis; SAVIN (286) p. 154. *P. desmoulini*; l. c.: LAMBERT (170) p. 841: SAYN (287) p. 622. *P. lamberti* n. sp., Upper Barremian, between Cognin and Malleval, Isère; SAVIN (286) p. 156, pl. i. *P. cf. ovatus* & *P. renewieri*; HITZEL (140).
- Pygmaeocidaris* n. g. with genotype *Podocidaris prionigera*, A. Agass. and probably comprising *P. scutata*; DOEDERLEIN (78) p. 621.
- †*Pygorhynchus* Ag. non Auctt., diagnosis; SAVIN (286) p. 169: the genotype is *Catopygus obovatus* and not any Tertiary species, vide *Plagiopygus*; LAMBERT (170) p. 843, footnote, & (171) p. 146. *P. cylindricus*; SAVIN (286) p. 171. *P. delbosii*; DOUVILLE (83) p. 22. *P. mayeri*; REDLICH (266) p. 343. *P. nucula* (Desor sub *Botriopygus*); SAVIN (286) p. 169. *P. rostratus* vide sub *Pygurus*. *P. savini* Cott., refd. to *Plagiopygus*; LAMBERT (171) p. 148. *P. sueuri* (Desor sub *Botriopygus*) (p. 171). *P. testudo* (Desor sub *Botriopygus*) & *P. valdensis* (de Lor. sub *Botriopygus*) (p. 170); SAVIN (286).
- †*Pygorhytes*, diagnosis & *P. analis*; SAVIN (286) p. 147.
- †*Pygurus*, diagnosis; SAVIN (286) p. 172. *P. sp.*; CRAGIN (64) p. 36. *P. africanus*; CHOIFFAT (50) p. 56. *P. blumenbachii*; THÉVENIN (313) p. 87: MAIRE (206) p. 219. *P. costatus*; op. cit. p. 220. *P. depressus*; LISSAJOUS (183) p. 697. *P. aff. durandi*; PERVINQUIÈRE (250). *P. haussmanni*; MAIRE (206) p. 220. *P. lampas*; PETRASCHECK (254) p. 415. *P. loryi*; SAVIN (286) p. 172. *P. meslei*; DOUVILLE (84): added notes, belongs to s.-g. *Mepygurus* Pomel; LAMBERT (172)

- p. 575. *P. michelini*; KILIAN (156) p. 760. *P. montmolini*, descr.; SAVIN (286) p. 173. *P. pentagonalis*; MAIRE (206) p. 220. *P. perreti* n. sp., Kimmeridgian, Tatahouine, Tunis; LAMBERT (172) p. 575, pl. xxii. *P. rostratus*; CHOIFFAT (51) pp. 7, 35, 36: ROTHPLETZ (281) p. 20: SAVIN (286) p. 174: WEGNER (333) pp. 139, 144, 149.
- +*Pyrina*, diagnosis (p. 149), *P. cylindrica* (p. 151); SAVIN (286). *P. icaunensis*; MAIRE (206) p. 221. *P. incisa*; CHOIFFAT (51) p. 9: SAVIN (286) p. 150. *P. pygaea*; op. cit. p. 151: ROLLIER (280). *P. aff. pygaea*; CHOIFFAT (51) p. 10. *P. subsphaeroidalis*; SAVIN (286) p. 152.
- +*Rachiosoma*, diagnosis (p. 205), *R. paucituberculatum* (p. 206); SAVIN (286).
- +*Rhabdocidaris* (vide etiam sub *Cidaris*), diagnosis; SAVIN (286) p. 275. *R. sp. nondescr.*; PAQUIER (238) p. 134. *R. (Leiocidaris) abbatei*, radioles descr.; FOURTAU (98) p. 130, pl. i. *R. capelloi*; CHOIFFAT (50) pp. 48, 58. *R. caprimontana*; MAIRE (206) p. 226: ROTHPLETZ (281) p. 51: SAVIN (286) p. 278. *R. cf. caprimontana*; KILIAN (156) p. 781. *R. cerioi* n. sp., radioles; AIRAGHI (7) p. 87, pl. i. *R. copeoides*; MAIRE (206) p. 225: SAVIN (286) p. 278. *R. aff. cortazari*; CHOIFFAT (51) p. 42. *R. aff. crassissima*; MAIRE (206) p. 226. *R. delgadoi*; CHOIFFAT (51) p. 7. *R. delphinensis* n. sp., Hauterivian, St Pierre-de-Chérennes, Isère; LAMBERT & SAVIN (286) p. 284, pl. vi. *R. gaillardotii*, radioles descr.; FOURTAU (98) p. 130, pl. i. *R. geveyri*; SAVIN (286) p. 280. *R. horrida*; LISSAJOUS (183) p. 691: SAVIN (286) p. 277. *R. impar*; l. c. *R. cf. insuetus*; CHOIFFAT (51) p. 9. *R. itala*, discussed, not found in Egypt, vide *R. jovis-ammonis*; FOURTAU (98) p. 131. *R. jacobi* n. sp., Upper Aptian, Le Rimet, Isère; LAMBERT & SAVIN (286) p. 286, pl. viii. *R. jovis-ammonis* n. sp., based on *R. itala* de Lor. non Laube, Eocene, Syouah, Egypt; FOURTAU (98) p. 132. *R. megalacantha*; MAIRE (206) p. 226. *R. mespilum*; DONCIEUX (81) p. 99: MIQUEL (215) pp. 19, 24. *R. mitrata*; MAIRE (206) p. 225. *R. moreau*; SAVIN (286) p. 276. *R. nobilis*; op. cit. p. 279: MAURY (210) p. 583. *R. orbignyana*; MAIRE (206) p. 226: THÉVENIN (313) p. 87. *R. pavimentatus* and *R. petitclerci*; SAVIN (286) p. 281. *R. pouechi*; DONCIEUX (81) p. 99: MIQUEL (215) p. 24. *R. salvae*; SAVIN (286) p. 281. *R. subserrata*; DONCIEUX (81) p. 100: MIQUEL (215) p. 24. *R. aff. thurmanni*; MAIRE (206) p. 226. *R. tuberosa*; CHOIFFAT (51) pp. 7, 35: PARONA (242) p. 66: radioles; AIRAGHI (7) p. 86, pl. i: SAVIN (286) pp. 282, pl. vii.
- +*Rhabdopleurus ataxensis*; DONCIEUX (81) p. 103.
- +*Rhynchopygus abundans*; BALL (15) p. 30.
- +*Rotuloidea fimbriata* allied to *Heliophora*; LAMBERT in BOISTEL (35) p. 205.
- Salenia*, diagnosis, and +*S. depressa*; SAVIN (286) p. 209. +*S. dombensis*; CHOIFFAT (50) p. 56. +*S. folium-querci*; PERON (248) p. 365. +*S. garumensis* n. sp., Lower Danian of Tuco, Hte. Garonne; VALETTE (324) p. 27, figg. +*S. geometrica*; YOUNG (337) p. 216. +*S. grasi*; SAVIN (286) p. 210. *S. hastigera*; RICHARD (276) p. 3. +*S. incrassata* Cott. distinguished from *S. granulosa* Forbes; VALETTE (324) p. 24. +*S. prestensis*; AIRAGHI (7) p. 89, pl. i: PARONA (242) p. 66: SAVIN (286) p. 210.
- +*Salenidia gauthieri* n. sp., *Marsupites* zone, Saint-Martin-du-Terte, near Sens, Yonne; VALETTE (324) p. 30, figg.
- Schizaster* :—+*S. aff. africanus*; BEADNELL (24) p. 52. +*S. airaghii*; AIRAGHI (6) p. 10. +*S. ataxensis*; DONCIEUX (81) p. 106. +*S. batkeri* n. sp., Mid. Eocene, Pyramides de Ghizeh; FOURTAU (98) p. 135, pl. i. +*S. canaliciferus*; BASSANI (16). +*S. catalaunicus* n. sp., Eocene, La Antigua Ciudad de Jespus, Catalonia; LORIOL (195) p. 126, pl. ix.

- †*S. foveatus* incl. *Hemaster fourtaui* Mayer-Eymar; FOURTAU (98) p. 137. *S. fragilis*; NORDGAARD (230) p. 160: distrib.; DOEDERLEIN (79) p. 385. †*S. globulus*(?); SCHUBERT (293) p. 168. †*S. aff. globulus*; SCHUBERT (294) p. 280. †*S. kowa* n. sp., Eocene, Makamby, Madagascar, type at Strassburg; TORNQUIST (316) p. 329, pl. xlvi. †*S. jeani* n. sp., Lutetian, Vallée de la Valette, near Aragon, Aude; LAMBERT (171) p. 159, pl. v: DONCIEUX (81) p. 106. †*S. karreri*; GAÁL (103) pp. 344, 362. †*S. mirabilis* n. sp., Mid. Eocene, Novale, Italy; AIRAGHI (6) p. 9, pl. i. †*S. obesus*; DONCIEUX (81) p. 106. †*S. rotundatus*; CLARK (56) p. 415: (?) PARK (241) p. 521. †*S. rousseli*; DONCIEUX (81) p. 106: MIQUEL (215) p. 20. †*S. santamariae*, young; FOURTAU (98) p. 137, pl. i. †*S. scillae*; AIRAGHI (8) p. 216. †*S. studeri*; AIRAGHI (6) p. 10. †*S. zitteli*, incl. *S. mokatia-mensis* as var., and *S. rohlfsi* as syn.; FOURTAU (98) p. 138.
- †*Schizobrissus* Pomel, genotype *Brisiss cruciatus* Ag., distinguished from *Deakia*, comprises *Linthia locardi* Tournouer; LAMBERT (171) p. 156.
- †*Scutella*:—*S. germanica* Beyr., as figd. by Noetling under *Echinorachnus* comprises two spp., of which the true one is referred to *Stenaster* Lamb.; LAMBERT (171) p. 138. *S. subtetragona*; DOUVILLE (83) pp. 17, 18, 27. *S. vindobonensis*; GAÁL (103) pp. 344, 362.
- †*Scutellidae*, n. g. vide *Stenaster*.
- †*Scutellina*:—*S. concava* Gauth., referred to *Porpitella*; LAMBERT (171) p. 138. *S. fibularioides*, vide sub *Porpitella*. *S. patella*; MULDER (222). *S. supera*, vide sub *Porpitella*.
- †*Scutulum* Tournouer, refd. to *Dendrasteridae*; LAMBERT (171) p. 140.
- †*Spaniocyphus*, diagnosis, and *S. theveneti*; SAVIN (286) p. 191.
- Spatangidae*, n. gg. *Plagiopneustes*, *Heterospatangus*, n. s-g. *Perispatangus* (qq. v.).
- Spatangus*:—†*S. cf. austriacus*; GAÁL (103) pp. 344, 362. *S. capensis* n. sp., 70–106 m. off Cape Colony; DOEDERLEIN (78) p. 624, no fig. †*S. delphinus* Defr., probably *Brissooides*; LAMBERT (173) p. 883. *S. purpureus*; HØRRING (142) p. 189: KEMP (152) pp. 182, 199, 206: NORDGAARD (230) pp. 160, 235: †BASSANI (16): distrib.; DOEDERLEIN (79) p. 383. *S. raschi*, id.; l. c.: KEMP (152) p. 199.
- Sperosoma durum* n. sp., 1644 m. off E. Africa; DOEDERLEIN (78) p. 621, no fig. *S. grimaldii*; SCHMIDT (291) p. 23: distrib.; DOEDERLEIN (79) p. 377.
- Sphaerechinus granularis*, see under II, C, vii & II, F, viii.
- †*Stenaster* n. g. [nom. preocc. E. Billings pro *Ast.*, vide *Purmulechinus*] of *Scutellidae* l., with genotype *S. labiei* n. sp., Stampian of Espiet, Gironde, colln. Lambert, comprises also *Scutella germanica*; LAMBERT (171) p. 140.
- Stereocidaris*:—†*S. hannoverana*, measurements; WOLLEMANN (343). *S. ingolfiana*; SCHMIDT (291) p. 23: distrib.; DOEDERLEIN (79) p. 376. †*S. malum*; PAQUIER (238) p. 134.
- †*Stigmatopygus malheiroi*; CHOFFAT (50) p. 59.
- †*Stomechinus*, diagnosis; SAVIN (286) p. 188. *S. bigranularis*; l. c.: THÉVENIN (313) p. 76. *S. denudatus*; SAVIN (286) p. 189. *S. aff. gauthieri*; KILIAN (156) p. 743. *S. gyratus*; MAIRE (206) p. 233. *S. cf. laevis*; KILIAN (156) p. 743. *S. perlatus*; MAIRE (206) p. 233: added notes, LORIOL (195) p. 144.
- †*Strictechinus pouechi* is a *Circopeltis*; LAMBERT (171) p. 136.
- Strongylocentrotus* (vide etiam sub *Paracentrotus*):—*S. droebachiensis*; CLARK (55) p. 7: HØRRING (142) pp. 185, 189: NORDGAARD (230) pp. 160, 235: SCHMIDT (291) pp. 18, 19: SCHMITT (292) p. 247: distrib.; DOEDERLEIN (79) p. 380. *S. franciscanus*; op. cit. p. 382: LOEB (190). *S. gibbosus*; ORTMANN (234) p. 697. *S. lividus*; KEMP (152) p. 182: PIZON (257): RUSSO (283) p. 7, fig.: †CHOFFAT (52)

- p. 749 : see also under II, c, vii & II, F, viii. *S. purpuratus*; DOEDERLEIN (79) p. 382 : see also under II, F, viii.
- †*Tetragramma variolare*; FAVRE (91) p. 99.
- †*Thagastea*, link betw. *Fibularia* and *Fibulina*; TORNQUIST (316) p. 328.
- †*Thylechinus atacicus*; DONCIEUX (81) p. 102.
- †*Tiaromma*, diagnosis (p. 230). *T. rotulare* (p. 231); SAVIN (286).
- †*Toxaster*, diagnosis; SAVIN (286) p. 122: *T. africanus*; BRIVES (42) pp. 85, 87. *T. amplus*; LAMBERT (170) p. 846. *T. broncoensis*; CHOIFFAT (51) p. 29. *T. collegnii* (incl. *T. brunneri*); PANNEKOEK (237) p. 5. *T. complanatus* (= *T. retusus*); SAVIN (286A). *T. cf. complanatus*; TOULA (317) p. 341. *T. gibbus*; SAVIN (286) p. 123. *T. granosus* et cf. *granosus*, compared with *T. ricordeaui* (p. 845), *T. lorioli* Lambert not to be separated from *T. ricordeaui* (p. 844, footnote); LAMBERT (170). *T. radula* Gauth., refd. to *Hypsaster*; LAMBERT in SAVIN (286) p. 129. *T. retusus*; LAMBERT (170) p. 846: SAVIN (286) p. 123: *T. ribamarensis* n. sp., Urgonian, Barremian, Ribamar, in Ericeira, Portugal; LORIOL (195) p. 138, pl. x: and in CHOIFFAT (51) p. 27. *T. ricordeanus* seu *ricordeaui*; PERON (248) p. 365: SAYN (287) p. 622: HITZEL (140): cannot be this sp., does author mean *Hemaster ricordeaui*?; LAMBERT in Review: variations resembling *Miotoxaster collegnii*; LAMBERT (170) p. 843. *T. cf. ricordeani* [sic]; SAVIN (286) p. 122. *T. subcylindricus*; op. cit. p. 124.
- Toxopneustes lividus*; LOISEL (194): vide etiam sub *Paracentrotus* et *Strongylocentrotus*.
- †*Trachyaster heberti*; CISNEROS (54) p. 529.
- †*Trachypatagus meneghinii*; SCHUBERT (293) p. 168.
- †*Trematopygus*, diagnosis; SAVIN (286) p. 156. *T. davidseni*; DAVEY (66) p. 34. *T. grasanus* d'Orb., made *Clitopygus grasi*; SAVIN (286) p. 158. *T. lorioli* n. sp., Upper Aptian, La Fa, Isère; LAMBERT & SAVIN (286) p. 157, pl. i.
- †*Triplacidia vidali* n. sp., Eocene, La Antigua Ciudad de Jespus, Catalonia; LORIOL (195) p. 122, pl. viii.
- Tripylus*, vide sub *Linthia*.
- †*Trochotiara*, diagnosis (p. 234). *T. depressum* (p. 235); SAVIN (286).
- Tromikosoma koehleri*; DOEDERLEIN (79) p. 377.
- †*Tylocidaris*, diagnosis; SAVIN (286) p. 239. *T. sorigneti*; l. c.: HITZEL (140).
- †*Typocidaris*, diagnosis, and *T. malum*, incl. radioles known as *Cidaris heteracantha* (p. 272), *T. marginata* (p. 275); SAVIN (286). *T. vesiculosa*; HITZEL (140).
- Urechinus drygalskii* n. sp., near Antarctic Continent, 3423 m. (p. 241, no fig.), *U. naresianus*, S. of Iceland (p. 243); MORTENSEN (220).
- †*Zeugopleurus pusillus*; WEGNER (333) pp. 126, 149.

(D).—ASTEROIDEA.

- Acanthaster echinites*; LUDWIG (197) p. 215.
- Albatrossia* n. g. of *Porcellanasteridae* [nom. preocc. Jordan & Evermann, 1898, pro *Piscibus*] with genotype *A. semimarginalis* n. sp., Cocos Id., 1408–2149 m.; LUDWIG (197) p. 97, pl. vi.
- Alexandraster* n. g. of *Echinasteridae*, with genotype *A. mirus* n. sp., G. of Panama, Galapagos, 702–837 m.; LUDWIG (197) p. 210, pls. xv, xxxi, xxxii.
- Archaster typicus*, young; LUDWIG (197) p. 53, pl. xxi.
- †*Arthraster dixoni*; SPENCER (305) pl. xviii.
- †*Asteracanthion lincki*, determined by A. E. VERRILL; SEARS (297) pp. 369, 370, fig. 202: vide etiam sub *Asterias*.

- Asterias aurantiaca*; COLGAN (61) p. 212: vide etiam sub *Astropecten*.
A. austera; CLARK (55) p. 3. *A. brandti*; HODGSON (141). *A. calamaris* (p. 251), *A. capensis* (p. 252); BELL (26). *A. forbesi*; CLARK (55) p. 4. *A. glacialis*; BELL (26) p. 252: KEMP (152) p. 179: NOBRE (228) p. 82 and (229) p. 133: NORDGAARD (230) p. 160: PIETSCHMANN (256): see also II, c, vii. †*A. impressae*; HUCKE (143) p. 166 and fig. †*A. jurensis*; AEBERHARDT (1) p. 442. *A. linckii*; NORDGAARD (230) p. 160: vide etiam sub *Asteracanthion*. *A. littoralis*; CLARK (55) p. 4. *A. muelleri*; NORDGAARD (230) pp. 160, 235: SCHMIDT (291) p. 18. *A. rubens*; BOLAÚ (36): HØRRING (142) pp. 185, 188: KEMP (152) pp. 180, 192: NOBRE (228) p. 82: NORDGAARD (230) pp. 160, 232, 235: PETERSEN (253): vide etiam sub *Uraster*. †*A. stellionura*, determined by A. E. VERRILL; SEARS (297) pp. 369, 370. *A. tenera*; CLARK (55) p. 4. *A. volsellata*; BELL (26) p. 252. *A. vulgaris*; CLARK (55) p. 4: GARREY (108): SCHMITT (292) p. 246.
- Asterina cepheus* juv.; LUDWIG (197) p. 157. *A. coccinea*; BELL (26) p. 248. *A. fimbriata*, distrib., young; LUDWIG (199) p. 59, pls. v, vi. *A. gibbosa*; KEMP (152) p. 179: NOBRE (228) p. 82, & (229) p. 133.
- Asterodon grayi*, vide *Odontaster penicillatus*. *A. pedicellaris*, vide *Odontaster grayi*. *A. singularis*; LUDWIG (199) p. 40, pl. v.
- Astrogonium* Perrier non Müller & Troschel, syn. of *Pararchaster*; FISHER (92) p. 303. *A. boreale* Barrett, vide *Pentagonaster*.
- Astropectinidae* n. g., see *Parastropecten*.
- Astropecten* rediagnosed; SPENCER (305) p. 90. †*A. sp.*; BENECKE (29) pp. 75, 451: Upper Greensand; SPENCER (305) p. 90, pl. xxv. *A. aurantiacus*; PIETSCHMANN (256): vide etiam sub *Asterias*. *A. bentophilus* n. sp., Cocos Id., 1408 m.; LUDWIG (197) p. 69, pl. iv. *A. capensis*; BELL (26) p. 244. *A. exiguum* n. sp., G. of Panama, 232-2136? m.; LUDWIG (197) p. 72, pls. iv, xxii. *A. irregularis*; KEMP (152) pp. 179, 188, 205: NOBRE (229) p. 132: NORDGAARD (230) p. 160. *A. muelleri*; SCHMIDT (291) p. 21. *A. pentacanthus*; PIETSCHMANN (256). *A. polyacanthus*; LUDWIG (197) p. 76. *A. pontoporae*; BELL (26) p. 243. *A. subinermis*; NOBRE (229) p. 133. *A. sulcatus* n. sp., C. San Francisco and Cocos Id., 95-121 m.; LUDWIG (197) p. 64, pl. iv. †*A. wilckensis* [sic] n. sp., Cretaceous, Cerro Cazador, Patagonia; LORIOL (195) p. 141, pl. x.
- Bathybiaster pallidus*; SCHMIDT (291) p. 20. *B. pectinatus* n. sp., off San Diego, Cal., 1,059 fm.; FISHER (92) p. 295, no fig.
- Benthopecten acanthonotus* n. sp., off San Diego, Cal., 1059 fm.; FISHER (92) p. 299, no fig.
- Brisinga* sp.; KEMP (152) p. 192. *B. coronata*; l. c. and p. 205: NORDGAARD (230) pp. 160, 241. *B. endecacnemos*; KEMP (152) p. 192. *B. exilis* n. sp., off San Diego, Cal., 620 fm.; FISHER (92) p. 318, no fig. *B. panamensis* n. sp., Cocos Id., Galapagos, G. of Panama, G. of California, 1820-2418 m. (p. 258, pls. xxviii, xxxii), *B. tenella* n. sp., Galapagos, 2418 m. (p. 255), *B. variispina* n. sp., Paumotu Is., 1470 m. (p. 249); LUDWIG (197).
- Calliaster baccatus*; BELL (26) p. 247.
- †*Calliderma mosaicum*; SPENCER (305) pl. xxvi.
- Cheiraster agassizii* n. sp., G. of Panama, Galapagos Is., and G. of California, 1271-2323 m.; LUDWIG (197) p. 1, pls. i, ii, xvi.
- †*Comptonia* rediagnosed and *C. comptoni*, redescr. (p. 69, pls. xvii, xviii), *C. elegans*, redescr. from neotype (p. 71, pl. xvii); SPENCER (305).
- Cosmasterias lurida*, distrib.; LUDWIG (199) p. 69.
- Cribrella gracilis* n. sp., Tres Marias Id., C. Corrientes Mexico, and Galapagos, 267-1244 m.; LUDWIG (197) p. 204, pls. xiii, xxx, xxxi.

- C. pagenstecheri*, distrib., notes ; LUDWIG (199) p. 68. *C. pectinata* ; CLARK (55) p. 3. *C. nana* n. sp., Galapagos, 97 m. ; LUDWIG (197) p. 207, pls. xiii, xxxi. *C. sanguinolenta* ; CLARK (55) p. 3 : HØRRING (142) pp. 185, 188 : NORDGAARD (230) p. 160 : SCHMIDT (291) pp. 19, 20 : vide etiam sub *Henricia*.
- Crossaster papposus* ; CLARK (55) p. 2 : SCHMITT (292) p. 246 : vide etiam sub *Solaster*.
- Cryptopeltaster* n. g. of *Goniasteridae Hippasteriinae*, with genotype *C. lepidonotus* n. sp., off Sta. Cruz Id. Cal., 197-284 fm. ; FISHER (92) p. 311, no fig.
- Ctenodiscus crispatus* ; CLARK (55) p. 1 : NORDGAARD (230) pp. 160, 235, 241 : SCHMIDT (291) pp. 18, 19 : incl. *C. procurator* Slad. and *C. corniculatus* Michailovskij, distinct fr. *C. australis* ; LUDWIG (197) p. 164, pl. vi.
- Culcita novae-guineae* ; LUDWIG (197) p. 156. *C. veneris* ; BELL (26) p. 248.
- Cycethra verrucosa* ; HODGSON (141) : incl. *C. nitida*, *C. simplex*, resemblance of young to *Asterina* ; LUDWIG (199) p. 53, pl. vi.
- Dipsacaster eximius* n. sp., Los Coronados Is., S.W. Cal., 525 fm. ; FISHER (92) p. 296, no fig. : *D. stadeni*, parasitic cirripede ; LE ROI (182).
- Dytaster demonstrans* n. sp., G. of Panama, 2418-4082 m. ; LUDWIG (197) p. 41, pls. v, xviii, xix, xx. *D. giberti* n. sp., off San Diego, Cal., 2196-2228 fm. ; FISHER (92) p. 300, no fig.
- Echinaster* sp. ; BELL (26) p. 252. *E. fallax*, parasitic cirripede ; LE ROI (182).
- Echinasteridae* n. g. see *Alexandraster*.
- Eremicaster* n. s.-g. of *Porcellanaster*, with genotype *P. tenebrarius* (q.v.) ; FISHER (92) p. 293.
- Freyella* sp. nondescri. aff. *F. elegans* ; SCHMIDT (291) p. 24. *F. fecunda* n. sp., Monterey Bay, Cal., 958 fm. ; FISHER (92) p. 319, no fig. *F. insignis* n. sp., G. of Panama, Acapulco, 3182-3436 m. (p. 272, pl. xxxii), *F. pacifica* n. sp., Paumotu Is., 1485 m. (p. 267), *F. propinquia* n. sp., G. of Panama, 2877 m. (p. 280) ; LUDWIG (197).
- Ganeriidae*, i.e. *Ganeria*, *Cycethra*, *Lebrunaster*, *Radaster*, not to be separated from *Asterinidae* ; LUDWIG (199) p. 59.
- Gnathaster pilulatus*, vide *Odontaster penicillatus*.
- Goniaster acutus* Heller ; GRIEG (121) p. 3. *G. midarosiensis*, vide *Peltaster*. *G. phrygianus* ; SCHMIDT (291) p. 21. *G. placentaeformis* Heller ; GRIEG (121) p. 3.
- Goniasteridae* n. g. *Cryptopeltaster* (q.v.) ; FISHER (92).
- Gymnasteria carinifera*, added notes ; LUDWIG (197) p. 156, pl. xii.
- Henricia ornata* incl. *H. simplex* (Slad.) ; BELL (26) p. 250. *H. sanguinolenta* ; KEMP (152) pp. 179, 191, 205 : NOBRE (229) p. 133 : vide etiam sub *Cribrella*.
- Hippasteria* (seu -ias) *californica* n. sp., off Sta. Cruz Id., Cal., 506-680 fm. (p. 310, no fig.), *H. heathi* n. sp., Clarence Str., Alaska, 206-248 fm. (p. 309, no fig.) ; FISHER (92). *H. pacifica* n. sp., Las Tres Marias Id., 1244 m. ; LUDWIG (197) p. 138, pls. xii, xxiii. *H. phrygiana* ; CLARK (55) p. 1 : GRIEG (121) p. 4 : NORDGAARD (230) pp. 160, 235.
- Hydrasterias* (?) sp., arms of an undescribed sp., Galapagos (p. 246, pl. xxxv), *H. diomedea* n. sp., G. of Panama, Cocos Id., 121-155 m. (p. 242, pls. xxxiv, xxxv) ; LUDWIG (197).
- Hymenaster* sp. ; BELL (26) p. 250 : LUDWIG (197) p. 202. *H. gracilis* n. sp., G. of Panama, Galapagos, 2418-3241 m. ; op. cit. p. 198, pls. xv, xxxv. *H. pellucidus* ; SCHMIDT (291) p. 20. *H. platycanthus* n. sp., Galapagos, G. of Panama, 2487-2877 m. (p. 191, pl. xxxv), *H. purpureus* n. sp., G. of Panama, 2690 m. (p. 194) ; LUDWIG (197). *H. quadrispinosus* n. sp., off San Diego, Cal., 1059 fm. ; FISHER (92)

- p. 315, no fig. *H. violaceus* n. sp., Acapulco, 3436 m.; LUDWIG (197) p. 196.
- Hyphalaster moseri* n. sp., N. of Marquesas, 4504 m.; LUDWIG (197) p. 100, pl. vii.
- Isaster* Verrill, perhaps to be used for s.-g. of *Mediaster*; FISHER (92) p. 308.
- Labidiaster radiosus*, distrib., arm-skeleton; LUDWIG (199) p. 71.
- Leptoptychaster arcticus*; NORDGAARD (230) p. 160. *L. kerguelensis*; BELL (26) p. 242.
- Linckia miliaris* (p. 157), *L. multifora* & *L. pacifica* var. *diplex* (p. 158); LUDWIG (197).
- Lophaster furcilliger* n. sp., between Sta. Barbara & San Nicholas Is., Cal., 1084-1100 fm.; FISHER (92) p. 312, no fig.
- Luidia africana*; BELL (26) p. 245. *L. armata* n. sp., Cocos Id. & G. of Panama, 95-155 m.; LUDWIG (197) p. 85. *L. ciliaris*; KEMP (152) p. 189. *L. ferruginea* n. sp., G. of Panama, 280 m.; LUDWIG (197) p. 80. *L. sarsi*; KEMP (152) pp. 189, 205.
- Mediaster* referred to *Pentagonasteridae* (p. 106), *M. elegans* n. sp., Cocos Id., 1789 m. (p. 125, pls. ix, xxiv): n. var. *abyssi*, Malpelo Id., 3334 m. (p. 128); LUDWIG (197). *M. tenellus* n. sp., off Sta. Cruz Id., Cal., 376-510 fm., perhaps in s.-g. *Isaster*; FISHER (92) p. 307, no fig. *M. transuga* n. sp., Acapulco, 902 m.; LUDWIG (197) p. 120, pls. viii, xxii, xxv.
- †*Metopaster* :— *M. mantelli*; SPENCER (305) pl. xvii. *M. parkinsoni*; op. cit. pl. xix; WHITE (338) pp. 472, 487.
- Mimaster swifti* n. sp., Stephen's Passage, Alaska, 131-188 fm.; FISHER (92) p. 301, no fig. *M. tizardi*; SCHMIDT (291) p. 22.
- Mithrodia clavigera*, anat. notes; LUDWIG (197) p. 215.
- †*Mitraster compactus*, redescr.; SPENCER (305) p. 67, pls. xvii, xxvi.
- Myxoderma* n. s.-g. of *Zoroaster*, with genotype *Z. sacculatus* (q.v.); FISHER (92) p. 316.
- Neomorphaster talismani*, 5413 m.; RICHARD (276) p. 3: ALBERT (9).
- Nymphaster* referred to *Pentagonasteridae*; LUDWIG (197) p. 106. †*N. coombii*; SPENCER (305) pl. xix. *N. diomedae* n. sp., Galapagos, Cocos Id., Mariato Pt., 702-1618 m.; LUDWIG (197) p. 128, pls. x, xi. †*N. radiatus* n. sp., Lower Chalk, England; SPENCER (305) p. 73, pl. xxv. *N. subspinosus*; KEMP (152) p. 189.
- Odontaster*, connotation discussed; LUDWIG (199) p. 42. *O. crassus* n. sp., off San Diego, Cal., 92 fm.; FISHER (92) p. 302, no fig. *O. grayi* (Bell) incl. *Pentagonaster paxillosus* Bell, *Asterodon pedicellaris* Perr., distrib., young; LUDWIG (199) pp. 42, 48, pl. v. *O. meridionalis*, vide *O. penicillatus* incl. *Gnathaster pilulatus* Slad., *Asterodon grayi* Perr., *Odontaster meridionalis* Leip., distrib., young; LUDWIG (199) pp. 42, 46, pl. v.
- Ophidiaster cylindricus*; LUDWIG (197) p. 158.
- Oreaster*, vide *Pentaceros*. †*O. bulbiferus*; WHITE (338) p. 476.
- Palmipes membranaceus*; PIETSCHMANN (256). *P. novemradiatus* n. sp., holotype from C. Natal, 48 fm., 3 paratypes other locc.; BELL (26) p. 248. *P. placenta*; KEMP (152) p. 190.
- Pararchaster cognatus* n. sp., 3058 m., G. of Panama; LUDWIG (197) p. 21, pl. xix. *P. sp.* nondescr. aff. *P. fischeri*; SCHMIDT (291) p. 24.
- P. pectinifer* n. sp., 1618 m., Galapagos Is. (p. 10) young (p. 16) (pls. i, xvi, xvii, xviii), *P. spinuliger* n. sp., 1618-2323 m., G. of Panama, Cocos & Galapagos Is. (p. 23, pl. xix); LUDWIG (197).
- Parastropecten* n. g. of *Astropectinidae* with genotype *P. inermis* n. sp., G. of Panama & Cocos Id., 1271-1408 m.; LUDWIG (197) p. 76, pls. iv, xxi, xxii.
- Paulia horrida* redescr., with n. var. *galapagensis*; LUDWIG (197) p. 143, pls. xiii, xxiv, xxv.

Pauliella n. g. of *Pentacerotidae* with genotype *P. aenigma* n. sp., Cocos Id., 121 m., perhaps is young of *Paulia horrida*; LUDWIG (197) p. 151, pls. xii, xxiii, xxiv, xxv.

Pedicellaster improvisus n. sp., Galapagos & Cocos Id., 1618–2419 m.; LUDWIG (197) p. 216, pl. xxxv. *P. typicus*; NORDGAARD (230) p. 160.

Peltaster hebes Verrill is syn. of *P. nidarosiensis* (Storm sub *Goniaster*) redescr. and figd., which thus becomes genotype; GRIEG (121) p. 5.

†*Pentaceros* rediagnosed, incl. *Oreaster* (q.v.) (p. 76), *P. sp.*, Chalk (p. 89, pl. xxv), *P. abbreviatus* n. sp., Upper Chalk, Charlton, Kent (p. 86, pl. xxiv), *P. spinosus* n. sp., Upper Chalk, Sittingbourne, Kent (p. 87, pl. xxiii), *P. boysi*, redescri., probably incl. *P. senonensis*, Valette (p. 80, pls. xxii, xxiii, xxvi), *P. bulbiferus*, redescri. (p. 77, pls. xx, xxi, xxiii), *P. coronatus*, redescri. (p. 82, pls. xix, xxiv, xxv), *P. ocellatus*, redescri. (p. 85, pl. xxv), *P. pistilliferus*, discussed (p. 88, pl. xxv), *P. punctatus* n. sp., Upper Chalk, England (p. 88, pl. xxvi), *P. squamatus*, redescri. (p. 83, pl. xxv); SPENCER (305).

Pentacerotidae n. g. see *Pauliella*.

Pentagonaster :—†*P. browni* n. sp., Cretaceous, Fox Hills Sandstone, near Lander, Wyoming; WELLER (334) text-figg. *P. ernesti* n. sp., Cocos Id., 2149 m. leads to *Nymphaster*; LUDWIG (197) p. 136, pl. x. *P. granularis*; KEMP (152) p. 189; NORDGAARD (230) p. 160: incl. *Astrogonium boreale* Barrett, measurements, variations, pedicellariae, spines; GRIEG (122). †*P. megaloplax*; WHITE (338) pp. 470, 472, 476. *P. nidarosiensis*; SCHMIDT (291) p. 22: vide etiam sub *Peltaster*. †*P. obtusus*, redescri.; SPENCER (305) p. 74, pl. xxii. *P. paxillus*, vide *Odontaster grayi*. *P. placenta*; GRIEG (121) p. 4. †*P. robustus* n. sp., Upper Chalk, Sussex; SPENCER (305) p. 73, pl. xxi. *P. tuberculatus*; BELL (26) p. 246.

Peribolaster biserialis n. sp., between Sta. Catalina and Sta. Barbara Is., Cal., 178–195 fm.; FISHER (92) p. 313, no fig.

Perknaster “only an aberrant *Echinaster*”; BELL (26) p. 253.

Persephonaster armiger n. sp., E. of Cocos Id., 1951 m.; LUDWIG (197) p. 36, no fig. *P. penicillatus* n. sp., off Los Coronados Is. S.W. Cal. 530–638 fm.; FISHER (92) p. 297, no fig.

Plutonaster abyssicola n. sp., G. of Panama, 1865–3058 m.; LUDWIG (197) p. 30, pls. iii, xix. *P. bifrons*; KEMP (152) p. 188. *P. pareli*; l. c. & pp. 183, 205; NORDGAARD (230) p. 160.

Pontaster, syn. of *Cheiraster*; LUDWIG (197) pp. 1, 8. *P. tenuispinis*; KEMP (152) pp. 187, 205; NORDGAARD (230) p. 160; SCHMIDT (291) p. 20.

Poranaria antarctica; LUDWIG (199) p. 51, pl. vi. *P. pulvillus*; KEMP; (152) p. 189.

Poraniamorpha rocea [sic]; NORDGAARD (230) p. 160.

Porcellanaster pacificus n. sp., G. of Panama, Cocos Id., Acapulco, Malpelo Id., 2070–3436 m.; LUDWIG (197) p. 89, pl. vi. *P. (Eremicaster) tenebrarius* n. sp., 200 miles off San Diego, Cal., 2196–2228 fm.; FISHER (92) p. 293, no fig. *P. waltharii* n. sp., G. of Panama, Galapagos and Acapulco, 2418–4082 m.; LUDWIG (197) p. 92, pl. v.

Porcellanasteridae n.g., see *Albatrossia*. n. s.g. of *Porcellanaster*, see *Eremicaster*.

Pseudarchaster referred to *Pentagonasteridae*; LUDWIG (197) p. 106.

P. alasensis n. sp., near Yes Bay, Behm Canal, Alaska, 147–205 fm.; FISHER (92) p. 303, no fig. *P. mosaicus* (p. 110), *P. pectinifer* n. sp., G. of Panama, 1865 m. (p. 106, p. vii), *P. pulcher* n. sp., Galapagos and Acapulco, 702–1618 m. (p. 110, pls. viii, xxii); LUDWIG (197). *P. pusillus* n. sp., between Sta. Barbara and San Nicholas Is., Cal., 216–339 fm.; FISHER (92) p. 304, no fig. *P. tessellatus*; BELL (26) p. 242. *P. verrilli* n. sp., G. of Panama, 998 m.; LUDWIG (197) p. 116, pls. vii, xxiii.

- Psilaster acuminatus*; BELL (26) p. 245. *P. andromeda*; KEMP (152) p. 188; NORDGAARD (230) pp. 160, 235, 241. *P. armatus* n. sp., S. of Las Tres Marias Id., 1236 m. (p. 59, pls. xxi, xxii), *P. sladeni* n. sp., Galapagos Is., 1618 m. (p. 57, no fig.); LUDWIG (197).
Pteraster sp. non descr. aff. *P. caribaeus*; SCHMIDT (291) p. 24. *P. jordani* n. sp., off San Diego, Cal., 642–650 fm.; FISHER (92) p. 314, no fig.
P. militaris; CLARK (55) p. 2; NORDGAARD (230) pp. 160, 240.
P. pulvillus; CLARK (55) p. 2; NORDGAARD (230) p. 160.
Retaster capensis; BELL (26) p. 250. *R. diaphanus* n. sp., Cocos Id., 1408 m.; LUDWIG (197) p. 202. *R. gibber*, added notes and corrections; LUDWIG (199) p. 65, pl. vi. *R. multipes*; SCHMIDT (291) p. 22.
Sarkaster n. g. of Solasteridae, with genotype *S. validus* n. sp., G. of Panama, Galapagos, Tres Marias Id., 523–1244 m.; LUDWIG (197) p. 185, pls. xv, xxix, xxx.
Solaster affinis; KEMP (152) pp. 183, 191. *S. australis* (Perr. sub *Crossaster*), small individual; LUDWIG (199) p. 63. *S. sp.* non descr. aff. *S. earlii*; SCHMIDT (291) p. 22. *S. endeca*; CLARK (55) p. 1; HØRRING (142) p. 188; NORDGAARD (230) p. 160; SCHMITT (292) p. 246. *S. glacialis* Dan. & Kor., incl. *S. echinatus* Storm & *S. syrtensis* Verrill; GRIEG (122) p. 4. *S. papposa*; COLGAN (61) p. 212; NORDGAARD (230) pp. 160, 235; SCHMIDT (291) p. 20. *S. penicillatus*; BELL (26) p. 249. *S. syrtensis*; NORDGAARD (230) pp. 160, 235.
Solasteridae, n. g. see *Sarkaster*.
Sporasterias antarctica, distrib.; LUDWIG (199) p. 70. *S. cocosana* n. sp., Cocos Id., 245 m. (p. 235, pls. xxxiii, xxxiv), *S. galapagensis* n. sp., S. of Chatham Id., 704 m. (p. 240, pl. xxxiv), *S. mariana* n. sp., Las Tres Marias Id., 1244 m. (p. 231, pl. xxxiii); LUDWIG (197).
†*Stellaster coombii*, distinction from *Asterias quinqueloba*; WEGNER (333) pp. 123, 149.
Stichaster albulus; CLARK (55) p. 3. *S. felipes*; BELL (26) p. 249.
S. roseus; NORDGAARD (230) p. 160; KEMP (152) pp. 190, 205.
Stolasterias alexandri n. sp., G. of Panama, 95–384 m. (p. 221, pl. xxxii), *S. robusta* n. sp., Galapagos, 704 m. (p. 228); LUDWIG (197).
Tosia leptocerama n. sp., off Point Loma, near San Diego, Cal., 376–594 fm.; FISHER (92) p. 306, no fig.
Uraster rubens; COLGAN (61) p. 212: vide etiam sub *Asterias*.
Zoroaster sp. juv., G. of Panama; LUDWIG (197) p. 177, pl. xxvii.
Z. (Myxoderma) evermanni n. sp., between San Diego and San Clemente Is., Cal., 500–507 fm.; FISHER (92) p. 317, no fig. *Z. fulgens*; SCHMIDT (291) p. 22. *Z. hirsutus* n. sp., Acapulco, 3436 m. (p. 172, pls. xxviii, xxix). *Z. longispinus* n. sp., G. of California, Galapagos, G. of Panama, 1430–2418 m. (p. 180, pls. xiv, xxix), *Z. magnificus* n. sp., Mariato Pt., 3058 m. (p. 159, pls. xxvi, xxvii), *Z. nudus* n. sp., G. of California, 1820–2599 m. (p. 164, pls. xiv, xxvii, xxviii); LUDWIG (197). *Z. ophiurus* n. sp., off San Diego, Cal., 1059 fm. (p. 315, no fig.), *Z. (Myxoderma) sacculatus* n. sp., Monterey Bay, Cal., 916 fm. (p. 316, no fig.); FISHER (92).
Zoroasteridae, n. s.-g. *Myxoderma* (q. v.); FISHER (92).

(E.)—OPHIUROIDEA.

- Amphilepis norvegica*; NORDGAARD (230) pp. 159, 241. *A. sp.* nondescr. aff. *A. norvegica*; SCHMIDT (291) p. 23.
Amphiodia, vide sub *Amphiura*.
Amphioplus (vide etiam sub *Amphiura*)—*A. abdita*; CLARK (55) p. 6.
Amphipholis squamata; CLARK (55) p. 6.

Amphiura abbreviata n. sp., Banda, Sulu, and Java Seas, 13–33 m. (p. 34, pl. iv), *A. ambigua* n. sp., Sulu Archipel, 13 m. (p. 39, pl. iv), *A. (Amphioplus) capax* n. sp., Banda Sea, 18 m., young (p. 50, pl. vi), *A. (Amphioplus) causata* n. sp., Borneo Bank and Gilolo Passage, 59–83 m. (p. 49, pl. v), *A. celata* n. sp., Amboina reefs (p. 35, pl. iv), *A. (Amphioplus) cesarea* n. sp., Banda and Java Seas, 27–91 m. (p. 44, pl. v), *A. coacta* n. sp., off Kei Is., Banda Sea, 22 m. (p. 33, pl. iv), *A. (Amphioplus) condita* n. sp., Pulu Kaniungan Ketjil [Siboga Stat. 89], 11 m. (p. 46, pl. v), *A. depressa*, note on holotype (p. 46), *A. duncani* (p. 33); KOEHLER (160). *A. elegans*; KEMP (152) pp. 181, 195; NOBRE (229) p. 133. *A. (Amphioplus) exsecreta* n. sp., Amboina reefs; KOEHLER (160) p. 48, pl. iii. *A. filiformis*; HERRING (142) p. 189; KEMP (152) pp. 181, 195. *A. (Amphioplus) formata* n. sp., Lesser Sunda Is. (p. 51, pls. v, xvi), *A. hastata*, redescr. (p. 42, pl. v); KOEHLER (160). *A. incana*?; BELL (25) p. 258. *A. instans* n. sp., Banda Sea, 57 m. (p. 38, pl. iii), *A. (Amphioplus) intermedia* n. sp., off E. Java and E. Borneo, 9–59 m. (p. 42, pl. iv), *A. laevis* (p. 41); KOEHLER (160). *A. magellonica*; LUDWIG (199) p. 75. *A. morosa* n. sp., Gilolo Passage, 18 m.; KOEHLER (160) p. 37, pl. iii. *A. patagonica*, viviparous; LUDWIG (199) p. 75. *A. perita* n. sp., Solor Str. E. of Flores, 113 m. (p. 36, pl. iii), *A. (Amphioplus) personata* n. sp., W. Flores (p. 47, pl. v), *A. (Amphioplus) praestans* n. sp., var. locc., Malay Archipel, 32–51 m. (p. 45, pl. iv), *A. (Amphioplus) reducta* n. sp., Sula Besi, 22 m. (p. 52, pl. vi), *A. relicta* (p. 41), note on cotypes (p. 46), *A. (Amphiodia) reposita* n. sp., Pulu Kaniungan Ketjil [Siboga Stat. 89], 11 m. (p. 40, pl. iv); KOEHLER (160). *A. squamata*; BATHER (21) p. 165; PUETTER (263) p. 23. *A. tenuispina*; SCHMIDT (291) p. 23.

Astrochalcis n. g. of *Euryalidae* (p. 129), with genotype *A. tuberculosus* n. sp., var. locc., Malay Archipel., 13–73 m. (p. 130, pl. xvi); KOEHLER (160).

Astrophyton agassizii; SCHMITT (292) p. 247. *A. cornutum* (Koehl. sub *Gorgonocephalus*) adult descr. (p. 127, pls. xiii, xviii), *A. elegans* n. sp., Solor Str., E. of Flores, 113 m. (p. 123, pls. xiii, xviii), *A. gracile* n. sp., Lesser Sunda Is., 73 m. (p. 125, pl. xvii); KOEHLER (160).

Astro[s]chema rousseau; KOEHLER (160) p. 123.

†*Bundenbachia*; BATHER (21) p. 164.

Euryale studeri, incl. "E. aspera" Koehl. of Investigator; KOEHLER (160) p. 132.

Euryalidae, n. g. see *Astrochalcis*.

Gorgonocephalus agassizii; CLARK (55) p. 7. *G. eucnemis*; SCHMIDT (291) p. 20. *G. lamarcki*; NORDGAARD (230) p. 160. *G. pourtalesi* (p. 259), *G. verrucosus* (p. 260); BELL (25).

†*Lapworthiidae*, n. g. vide *Sympterura*.

Ophiacantha abyssicola; KEMP (152) pp. 195, 183; NORDGAARD (230) p. 159. *O. audax* n. sp., Java Sea, 69 m.; KOEHLER (160) p. 57, pl. vii. *O. bidentata*; CLARK (55) p. 7; NORDGAARD (230) p. 159; SCHMIDT (291) p. 24. *O. confusa* n. sp., S. of Philippines, 36 m. (p. 59, pls. vi, vii). *O. dallasii* (p. 55); KOEHLER (160). *O. decora*, vide *O. indica*. *O. (Ophiopristis) dissidens* n. sp., Pulu Kaniungan Ketjil [Siboga Stat. 89] 11 m. (p. 56, pl. vii), *O. indica*, incl. *O. decora* Koehl. (p. 56); KOEHLER (160). *O. spectabilis*, distrib., habitat; NORDGAARD (230) pp. 159, 239, 240. *O. spinulosa*; HØRRING (142) p. 185; PUETTER (263) p. 23. *O. suspecta* n. sp., Java Sea, 69 m.; KOEHLER (160) p. 58, pl. vii. *O. valenciennesi*; KOEHLER (159).

Ophiactis abyssicola; SCHMIDT (291) pp. 23, 24. *O. affinis* with 5 brachial spines; KOEHLER (160) p. 26. *O. asperula*, distrib.; LUDWIG (199) p. 74. *O. balli*; KEMP (152) pp. 195, 205. *O. conferta* n. sp., Gilolo

- Passage, 18 m. (p. 25, pl. iii), *O. savignyi*, 5 & 6 rays, variations, synonymy discussed, incl. *O. sexradia*, *incisa*, *reinhardtii*, *krebsi* (p. 26) ; KOEHLER (160).
- Ophiarachna incrassata* ; KOEHLER (160) p. 64.
- Ophiarthrum elegans* (p. 73), *O. pictum* (p. 72) ; KOEHLER (160).
- Ophiobrysa hystricis* ; KEMP (152) p. 196.
- Ophiocampsis inermis* n. sp., Kei Is. and Banda, 9-36 m. ; KOEHLER (160) p. 115, pl. xiii.
- Ophiociton ternispinis*, not British ; KEMP (152) p. 194.
- Ophiocnemis marmorata* ; KOEHLER (160) p. 112.
- Ophiocnida aspera* n. sp., Borneo Bank and S. of Philippines, 34 m. ; KOEHLER (160) p. 29, pl. ii. *O. brachiata* ; KEMP (152) p. 180. *O. dilatata* n. sp., Sulu Archipel. and Banda Sea, 12-45 m. (p. 30, pl. xii), *O. echinata*, added notes, autotomy of disc (p. 32), *O. sexradia* belongs to section *Amphilimna* Verrill (p. 33), *O. verticillata*, variations from type, differences from *O. putmanni* [*putnami*] Lym. (p. 29, pl. ii) ; KOEHLER (160).
- Ophiocoma brevipes* (p. 61), *O. doederleini* (p. 60), *O. lineolata* (p. 62) ; KOEHLER (160). *O. nigra* ; KEMP (152) pp. 181, 195. *O. rosula* ; COLGAN (61) p. 212. *O. scolopendrina* et var. *erinaceus* (p. 60), *O. wendtii*, redescr. (p. 63, pl. xiv) ; KOEHLER (160).
- Ophiocoenis cineta*, variation from type, structure of teeth (p. 14, pl. ii), *O. cupida* n. sp., var. locc. Sulu Archipel., 13-45 m. (p. 15, pl. i), *O. permixta* n. sp., Buton Str. S. of Celebes, and Kei Is. Banda Sea, 75-94 m. (p. 14, pl. ii) ; KOEHLER (160).
- Ophioceten sericeum* ; NORDGAARD (230) p. 159 : SCHMIDT (291) pp. 20, 23, 24.
- Ophiodera compacta* n. sp., Pulu Kaniungan Ketjil [Siboga Stat. 89], 11 m. ; KOEHLER (160) p. 120, pl. xiv.
- Ophioderma longicauda* ; BAGLIONI (12c) : NOBRE (229) p. 134. *O. wahlbergi*, distrib. ; BELL (25) p. 255.
- Ophioglypha* (vide etiam sub *Ophiura*) :—*O. affinis* ; CLARK (55) p. 5. *O. albida* ; HØRRING (142) pp. 185, 186, 188. *O. bullata*, *O. clemens*, and *O. flagellata* ; KOEHLER (159). *O. forbesi*, variations from type, relations to *Ophiomusium* ; KOEHLER (160) p. 22. *O. ornata* ; KOEHLER (159). *O. kinbergi*, incl. *O. sinensis*, variations, holotype descr. ; KOEHLER (160) p. 22. *O. lacertosa* ; ZELENY (349 & 350). *O. lepidu* var. *saurura* ; SCHMIDT (291) p. 24. *O. lymani*, variations in radial shields, &c. ; LUDWIG (199) p. 73. *O. robusta* ; CLARK (55) p. 5. *O. sarsi* ; op. cit. p. 6 : SCHMIDT (291) p. 18 : +NORDMANN (231). *O. scabra* n. sp., Kei Is. in Banda Sea, 90 m. (p. 20, pl. ii), *O. sculpta* (p. 22), *O. stellata* (p. 21) ; KOEHLER (160). *O. texturata* ; HØRRING (142), pp. 185, 188. *O. tumulosa* ; LUDWIG (198).
- Ophiogyptis* n. g. of *Ophiomyxidae*, with genotype *O. nodosa* n. sp., Banda Sea, E. of Flores, and Lesser Sunda Is., 73-113 m. ; KOEHLER (160) p. 121, pl. xii. [terr. typ. pro *Ophioglyptis*.]
- Ophiolepis annulosa* (p. 17), *O. cincta* (p. 16), *O. irregularis*, added notes (p. 17, pl. iii), *O. nodosa* (p. 18), *O. rugosa* (p. 18) ; KOEHLER (160).
- Ophiomastix annulosa* (p. 65), *O. asperula*, note on cotypes (p. 66, pl. vi), *O. caryophyllata*, variations (p. 67), *O. flaccida* (p. 67), *O. mixta*, redescr. from cotypes and others (p. 68, pls. vi, xv), *O. ornata* n. sp., Borneo Bank, 34 m. (p. 71, pl. vi), *O. pusilla*, with young stage (p. 65, pls. vi, xiii), *O. variabilis* n. sp., Timor, Sulu Archipel., and Java Sea, 12-32 m. (p. 69, pls. vi, xvi) ; KOEHLER (160).
- Ophiomaza cacaotica*, colour ; KOEHLER (160) p. 111.
- Ophiomusium lymani*, locality discussed ; KEMP (152) p. 194 : SCHMIDT (291) p. 24.
- Ophiomyxa brevispina*, notes, and *O. irregularis* n. sp., based on *O.*

- brevispina* var. *irregularis* KOEHLER, 1898; KOEHLER (160) p. 119, pl. xii.
O. vivipara; LUDWIG (199) p. 76.
- Ophiomyxidae* n. g., see *Ophiogyptis*.
- Ophionereis porrecta*, young (p. 53), *O. semoni* (Doed. sub *Ophiotriton*) (p. 54, pls. vi, xiv), *O. sophiae*, note on a cotype (p. 54, pl. vi); KOEHLER (160).
- Ophionotus victoriae*; HODGSON (141).
- Ophiopeza aster*, variations from type (p. 13), *O. conjungens*, differences of age (p. 12), *O. exilis* n. sp., Flores and Banda Seas, Gilolo Passage, 83–400 m. (p. 12, pl. ii); KOEHLER (160).
- Ophiopezella luetkeni*; KOEHLER (160) p. 13.
- Ophiolepolis aculeata*; CLARK (55) p. 6: HØRRING (142) pp. 185, 186, 188, 193; KEMP (152) pp. 195, 205: NORDGAARD (230) p. 159: SCHMIDT (291): SCHMITT (292) p. 246. *O. bellis*; GRIFFITHS (123).
- Ophiolepleura borealis*; SCHMIDT (291) p. 20.
- Ophioilocus imbricatus*; KOEHLER (160) p. 18.
- Ophiopristis*, vide sub *Ophiacantha*.
- Ophiopsammium rugosum* n. sp., Aru Is. and Red Sea, 13 m. (p. 116, pl. xiii), *O. semperi*, colour (p. 116); KOEHLER (160).
- Ophiopsila annulosa*, distinguished from *O. aranea*, found at Galway, Plymouth, Dartmouth; NORMAN (233). *O. pantherina*; KOEHLER (160) p. 53.
- Ophiopteron elegans* (p. 112), *O. puncto-coeruleum* n. sp., Flores, Aru, and Rotti, 13–40 m. (p. 114, pls. xii, xv), *O. sibogae* n. sp., Lesser Sunda Is., 73 m. (p. 113, pl. xii); KOEHLER (160).
- Ophioscolex dentatus*; BELL (25) p. 259. *O. glacialis*; SCHMIDT (291) p. 20: NORDGAARD (230) pp. 159, 240, 241: *O. purpureus*; op. cit. pp. 160, 240.
- Ophiosteira antarctica*; HODGSON (141).
- Ophiotigma formosa*, variations from type, holotype descr., young stage; KOEHLER (160) p. 24, pl. ii.
- Ophiothamnus remotus*; BELL (25) p. 258.
- Ophiothela danae*, incl. *O. isidicola*, var. *involuta* given up; KOEHLER (160) p. 117.
- Ophiothrix andersoni*, length of rays, colour; KOEHLER (160) p. 82, pl. xiv. *O. aristulata*; BELL (25) p. 258. *O. armata* n. sp., Banda (p. 103, pl. x), *O. bedoti* (p. 83), *O. coronata* n. sp., Gilolo Passage, 83 m. (p. 91, pl. ix), *O. demessa*, added notes (p. 91, pl. ix), *O. diligens* (p. 100), *O. exhibita* n. sp., Lesser Sunda Is., 274 m. (p. 110, pl. x), *O. exigua*, holotype descr., incl. "*O. comata*" Marktanner de Loriol (p. 86, pl. ix), *O. expedita* n. sp., various locc. Malay Archipel., 12–73 m. (p. 96, pls. ix, xv), *O. foveolata*, incl. *O. insidiosa* Koehl. (p. 76); KOEHLER (160). *O. fragilis*; KEMP (152) pp. 181, 196, 206: NOBRE (228) p. 82: NORDGAARD (230) p. 159. *O. fulgens* n. sp., Banda and Java Seas, 36–90 m. (p. 107, pl. x), *O. galatheae* (p. 84), *O. hirsuta*, incl. *O. variabilis* Duncan (pp. 93, 94), *O. infirma* n. sp., Banda and Java Seas, 54–90 m. (p. 89, pl. viii); KOEHLER (160). *O. insidiosa*, vide *O. foveolata*. *O. longipedata* (pp. 92, 94), *O. lorioli*, colour (p. 103); KOEHLER (160). *O. luetkeni*; KEMP (152) p. 196. *O. marginata* n. sp., Aru Is., Banda Sea, 13 m. (p. 79, pl. viii), *O. martensi* (p. 80), *O. melanosticta*, redescri. holotype and others (p. 77, pls. viii, xiv), *O. miles* n. sp., Malay Archipelago (p. 90, pl. ix), *O. nereidina* (p. 81), *O. nobilis* n. sp., Kei Is., Banda Sea, 90 m. (p. 83, pls. xi, xv), *O. obtusa* n. sp., Java Sea, Lesser Sunda Is., and E. of Flores, 69–113 m. (p. 98, pls. xi, xvi), *O. plana*, variations from type, colour (p. 75, pl. viii), *O. propinqua* (p. 81), *O. proteus* n. sp., var. locc. Malay Archipel., 32–83 m., incl. "*O. comata*" Koehl. 1898, 1900 (p. 100), *O. pulchella* n. sp., var. locc. Malay Archipel., 73–247 m. (p. 106, pls. xi, xv),

O. punctolimbata, characters discussed (p. 93), *O. purpurea*, colour (p. 102), *O. pusilla*, added notes (p. 85, pl. ix); KOEHLER (160). *O. roseo-coeruleans*; BELL (25) p. 258. *O. simplex* n. sp., Molo Str., Java Sea, 69–90 m., allied to *Ophiotrichoides* (p. 109, pl. x), *O. spinosissima* n. sp., Lombok and Banda, 9–36 m. (p. 104, pl. xi), *O. stelligera*, parasitic gastropod, variations, young (p. 87), n. var. *rugosa*, Banda, Sulu, and Java Seas (p. 88), *O. striolata*, colour (p. 76, pl. xv), *O. tenuis* n. sp., E. of Flores, 40 m. (p. 74, pl. viii); KOEHLER (160). *O. triglochis*; BELL (25) p. 259. *O. trilineata* (p. 73), *O. vitrea* (p. 99); KOEHLER (160).

Ophiotriton vide sub *Ophionereis*.

Ophiotypa simplex; KOEHLER (159).

Ophiozona capensis n. sp., 7 cotypes, off Cape Point, C. St Blaize, Lion's Hd., C. St Francis, 25–900 fm., podial pores restricted to 3 proximal; BELL (25) p. 256, pl. i. *O. projecta* n. sp., Sulu Archipel., Moluccas, Banda Sea, Solor Str., 15–113 m.; KOEHLER (160) p. 19, pl. i.

Ophiura (vide etiam sub *Ophioglypha*):—*O. affinis*; KEMP (152) pp. 180, 194. *O. albida*; COLGAN (61) p. 212: KEMP (152) pp. 180, 193: NORDGAARD (230) p. 159. *O. brevispina*; CLARK (55) p. 5. *O. carnea*; NORDGAARD (230) p. 159. *O. ciliaris*; KEMP (152) pp. 180, 192. *O. robusta*; NORDGAARD (230) pp. 159, 235. *O. sarsi*; op. cit. p. 159: KEMP (152) pp. 193, 205. *O. signata*, forms of mouth-shields, distinction from *O. affinis*; op. cit. pp. 183, 193, pl. xxxv. *O. texturata*; COLGAN (61) p. 212. *O. trimeni* n. sp., 4 cotypes, off Lion's Hd., S. Hd. Table Mt., 156–230 fm., podial pores restricted; BELL (25) p. 257, pl. i.

Pectinura arenosa (p. 10), *P. gorgonia*, colour (p. 8), *P. infernalis*, added notes, Bell's of 'Alert' coll. perhaps is *P. similis* (p. 7, pl. i), *P. nitens* n. sp., Sapeh Str., Sunda Is., 69 m. (p. 10, pl. i), *P. paucispina* n. sp., Borneo bank & Gilolo Passage, 34–83 m. (p. 4, pl. i), *P. septemspinosa* (p. 9), *P. similis* n. sp., various locc. in Malay Archipelago, 12–59 m. (p. 6, pl. i), *P. sphenisci*, added notes (p. 9), *P. stabilis* n. sp., Pater-noster Is. in Java Sea, and Gilolo Passage, 12–83 m. (p. 5, pl. i); KOEHLER (160).

†*Protaster sedgwicki*; BATHER (21) p. 164.

Sthenocephalus indicus, 204–487 m.; KOEHLER (160) p. 132.

†*Sympterura* n. g. with genotype *S. minveri* n. sp., Lower Devon., Epp-haven, Cornwall; BATHER (21) pl. vi.

(F.) CRINOIDEA *.

Bearing of autotomy and syzygies on classification of *Antedonidae* and *Actinometridae*; MINCKERT (214).

Crinoidea divided into *Palaeocrinoidea* and *Neocrinoidea* [A.D. 1905!]; HERTWIG (136 a) p. 311. *Crinoidea*, or at least recent *Crin.*, divided into two Orders, *Stylocrinoidea*, fixed forms, and *Eleutherocrinoida*, free forms; MINCKERT (213) p. 496.

†*Acanthocrinus rex*; LEPPA (180) p. 28: LEPPA (181) p. 16.

†*Actinocrinus*:—*A. sp.*; THÉVENIN (314): columnals; SMYČKA (303) p. 60. *A. daphne*; CLARKE (60) p. 116.

Actinometra, classification of spp. (p. 207), *A. belli*, regeneration of arms (pp. 204, 215, figg.), *A. fimbriata*, ditto (p. 218), *A. multibrachiata*, ditto (pp. 217, 219), *A. nobilis*, ditto (p. 219); MINCKERT (214). *A. parvicirra*, 14–17 fm., various locc. S. Africa; BELL (27) p. 141.

* Names that are sometimes given the termination -ites (e.g. *Pentacrinites*) are here treated as always ending in -us.

- A. paucicirra* & *A. quadrata*, regeneration (p. 226), *A. regalis*, ditto (p. 219), *A. sentosa*, ditto (p. 230); MINCKERT (214). †*A. vagnasensis* is Lower Aptian; PELLAT (244).
- †*Agaricocrinus* :—*A. brevis*, *A. bullatus*, *A. wortheni*; ROWLEY (282) p. 310.
- †*Agassizocrinus conicus*; ULRICH (321) p. 58, pl. vi.
- †*Amphorocrinus viminalis*; CLARKE (60) p. 116.
- Antedon* considered to be a misprint for *Anthedon*; MINCKERT (213) p. 496: classification of spp.; MINCKERT (214) p. 206: see also II, b, i, f, 8. *A. sp.*; KEMP (152) p. 187: †MULDER (222). *A. angusticalyx* & *A. angustiradiata*, regeneration; MINCKERT (214) p. 224. *A. barentsi*, syn. of *A. eschrichti*; DOEDERLEIN (80) pp. 397, 399. *A. bifida*; KEMP (152) pp. 179, 187, 205: NOBRE (229) p. 132: vide etiam *A. et Comatula rosacea*. *A. bipartipinna*, regeneration (p. 228), *A. brevipinna*, colour of regenerates (p. 178): regeneration of disc (p. 193), of arms (p. 202 et seqq.); MINCKERT (214). †*A. burgundiaca*; MAIRE (206) p. 242. *A. capensis* n. sp. of *basicurva* group, 13–27 fm., various locc. S. Africa; BELL (27) p. 139, pl. ii. *A. carinata*, partial regeneration of cirri (p. 192), *A. duplex*, regeneration (p. 211); MINCKERT (214). *A. eschrichti*; SCHMIDT (291) p. 19: total regeneration of cirri; MINCKERT (214) p. 189: incl. *A. barentsi* P. H. Carp., distrib.; DOEDERLEIN (80) p. 397: var. *quadrata*, distrib.; loc. cit. p. 398. *A. flexilis*, regeneration; MINCKERT (214) p. 211. †*A. gresslyi*; MAIRE (206) p. 242. *A. inaequalis*, regeneration (p. 224), *A. lusitanica*, ditto (p. 211); MINCKERT (214). *A. magnicirra* n. sp. of *savignyi* group, 300–450 fm., E. London, S. Africa; BELL (27) p. 141, pl. iv. *A. microdiscus*, regeneration (pp. 219, 230), *A. multiradiata*, ditto (p. 221 et seqq., fig. p. 231), *A. multispinosa*, ditto (pp. 211, 223); MINCKERT (214). *A. petasus*; RETZIUS (275) p. 82, pl. xii. *A. phalangium*; KEMP (152) p. 187: distrib.; DOEDERLEIN (80) p. 402. *A. philiberti*, regeneration; MINCKERT (214) p. 228. *A. prolixa*, distrib., probably local form of *A. tenella* (p. 401), *A. quadrata*, made var. of *A. eschrichti* (q.v.) (p. 398); DOEDERLEIN (80). †*A. rhodanicus*; AIRAGHI (5) pl. 45, pl. *A. rosacea*; †BASSANI (16): GODLEWSKI (115): GRAEFFE (117) p. 331: living attitude; LANKESTER (175) p. 292, fig.: regeneration; MINCKERT (214) p. 209, fig. et seqq.: vide etiam *Comatula* et *A. bifida*. *A. sclateri* n. sp. of *savignyi* group, 250–300 fm., E. London, S. Africa; BELL (27) p. 140, pl. iii. *A. spinifera*, colour of regenerates (p. 184), arm regenerated in place of pinnule (p. 200); MINCKERT (214). *A. tenella*; NORDGAARD (230) pp. 159, 235: SCHMIDT (291) pp. 19, 20: distrib.; DOEDERLEIN (80) p. 400: regeneration; MINCKERT (214) p. 208.
- †*Aporocrinus* :—*A. eris* & *A. helice*; CLARKE (60) p. 117.
- †*Apiocriinus* :—*A. sp.*; REMEŠ (269) p. 61, pl. vii: columnals; AIRAGHI (7) p. 84: PARONA (242) p. 66. *A. elegans*, IBB; Toit (315) fig. *A. parkinsoni*, *A. polycyphus*; MAIRE (206) p. 234.
- †*Aspidocrinus* :—*A. callosus*, *A. digitatus*; TALBOT (312) p. 31. *A. scutelliformis*; SHIMER (300) p. 197: WILLIAMS (342) pp. 28, 33, 47: root-nature doubted; TALBOT (312) p. 31.
- †*Balanocrinus* (vide etiam sub *Pentacrinus*) :—*B. ? sp.*; ROESSINGER (278) p. 437. *B. bathonicus*; LISSAJOUS (183) p. 696. *B. campichei*; KILIAN (156) pp. 781, 807. *B. pentagonalis*; AEBERHARDT (1) p. 442: KILIAN (156) pp. 776, 781. *B. subteres*; op. cit. pp. 781, 807: REMEŠ (272) p. 4.
- Bathycriinus* regeneration; MINCKERT (214) p. 194. *B. carpenteri*, distrib.; DOEDERLEIN (80) p. 402.
- †*Batocrinus* :—*B. irregularis*; ULRICH (321) p. 47. *B. subaequalis*; ROWLEY (282) p. 310.
- †*Bourgueticrinus* :—*B. sp.*; YOUNG (347) pp. 198, 215. *B. ellipticus*;

- . DEECKE (69) p. 19; MURGOCCI (223); TREACHER (319) p. 156; WEGNER (333) pp. 123, 125, 126, 132, 148; WHITE (338) pp. 468, 470, 487. *B.* [= *Mesocr.*] *fischeri* (p. 148), *B. listeri* (p. 125); WEGNER (333). *B. thorenti*; MURGOCCI (223).
- †*Brachioocrinus (Herpetocrinus?) nodosarius*, added notes; TALBOT (312) p. 32, pl. iv.
- †*Camerocrinus [sic] quarcitarum* n. sp., Ordovician d2 of Řevnitz, Bohemia; FRITSCH (100) for fig. see (88) Zool. Rec. 1904.
- †*Carabocrinus geometricus* n. sp., Chazy Limest., L. Champlain, N. Y.; HUDSON (144) p. 282, pl. i.
- †*Cleioocrinidae* n. fam. of *Dicyclica camerata* for *Cleioocr.*; BATHER in Review of SPRINGER (306).
- †*Cleioocrinus*, morphological description and rediagnosis, intermediate between *Camerata* & *Flexibilia*; SPRINGER (306): referred to *Cleioocrinidae* (q.v.), base an exaggeration of the *Archaeocr.* type; BATHER in Review: "ein spezialisierter Rhodocrinide"; JAEKEL in Review.
- †*Cleistocrinus*, err. pro *Cleioocrinus*; LUDWIG (200).
- †*Cliocrinus*, err. pro *Cleioocr.* (q.v.); LAMBERT in Review of SPRINGER (306). *C. magnificus*, incl. *C. grandis*, redescr. from types and other specimens, *C. regius*, redescr. from cotypes; SPRINGER (306) p. 110, pl. *Comatula rosacea*; COLGAN (61) p. 211: vide etiam *Antedon bifida* et *rosacea*.
- †*Conocrinus* :—*C.?* sp., columnals; DONCIEUX (81) p. 111. *C. thorenti*; DOUVILLE (83) pp. 19, 21, 27, 50.
- †*Cordylocrinus plumosus*, added notes, perh. incl. *C. parvus*; TALBOT (312) p. 28, pl. iii.
- †*Cosmocrinus ornatissimus* (Hall sub *Cyathocr.*) distinguished from *Marag-nicr.*; WHITFIELD (339) p. 19, pls. ii, iii: this accepted; CLARKE (58).
- †*Cyathocrinus* :—*C. formosus* n. sp., Lower Burlington Limest., Louisiana, Mo.; ROWLEY (282) p. 301, pl. xxi. *C. mammillaris*; MALLADA (208) p. 187. *C. ornatissimus* Hall, referred to *Scytalear.*; CLARKE (57) p. 44: type-specimen refigured and referred to *Cosmocrinus*; WHITFIELD (339) p. 19, pls. ii, iii. *C. pentagonus* (pp. 16, 26), *C. pinnatus* (pp. 21, 26, 27, 50, 53, 55), *C. planus* (p. 187), *C. quinquangularis* (p. 187); MALLADA (208). *C. rhenanus*; LEPPA (180) p. 28 & (181) p. 16.
- †*Cyrtocrinus digitatus* n. sp., Tithonian of Stramberg; REMEŠ (269) p. 60, pl. vii.
- †*Dadocrinus gracilis* :—*D. kunischii*; WYSOGÓRSKI (345).
- †*Decadocrinus* :—*D. aegina* (p. 117), *D. lyriope*, *D. pleias*, & *D. subtortuosus* (p. 118); CLARKE (60).
- Decametrocrinidae* n. fam. pro *Decametrocr.* & *Promachocr.*; MINCKERT (213) p. 494.
- Decametrocrinus* n. g. for spp. of *Promachocrinus* with unbranched arms [genotype not mentioned, the spp. would be *D. abyssorum* & *D. naresi*, of which the former agrees better with the diagnosis]; MINOKERT (213) p. 494.
- †*Dichocrinus simplex*; ULRICH (321) p. 33.
- †*Dolatocrinus* :—*D. glyptus* var. *intermedius* & *D. liratus* var. *multiliratus* (p. 118), *D. speciosus* (p. 119); CLARKE (60).
- †*Edriocrinidae* n. fam. of *Inadunata fistulata* [= *Dicyclica inadunata*] for *Edriocr.*; TALBOT (312) p. 20.
- †*Edriocrinus*, rediagnosed; TALBOT (312) p. 22. *E. becraftensis*; SHIMER (300) p. 196. *E. pocilliformis*; op. cit. pp. 183, 200, 201, 232, 233, 238, 262: redescr.; TALBOT (312) p. 23, pl. iv. *E. sacculus*; SHIMER (300) pp. 198, 233.
- Eleutherocrinoidae* ord. nov. "die freilebenden Crinoideen"; MINCKERT (213) p. 496.
- †*Enocrinus* :—*E.* sp.; MARTELLI (209) p. 332. *E.* ? sp. columnals; TOULA

- (317) p. 348, p. vi. *E. aculeatus*; WYSOGÓRSKI (335). *E. cassianus*; MARTELLI (209) p. 331, pl. xi; BLASCHKE (32) p. 166. *E. granulosus*; I. c.; BAKALOW (13); MARTELLI (209) p. 330, pl. xi. *E. liliiformis*; WYSOGÓRSKI (345); columnals; MORICH (219) fig.
- †*Entrochus*—*E. dentatus*; MALLADA (208) pp. 13, 27. *E. insignis* n. sp., Cenomanian [i. e. Trias], Kotel, E. Balkans; TOULA (317) p. 347, pl. vi; BAKALOW (13).
- †*Eretmoecrinus*—*E. coronatus* (p. 310), *E. nodosus* (p. 303, pl. xxi); ROWLEY (282).
- †*Erisocrinus europaeus*; MALLADA (208) pp. 182, 187.
- †*Eugeniacrinus hoferi*; MAIRE (206) p. 234.
- †*Euryocrinus concavus*; MALLADA (208) p. 187.
- †*Extracrinus*, vide sub *Pentacrinus*.
- †*Glyptocrinus*—*G. dyeri*, fixed pinnules; SPRINGER (306) p. 106, pl. *G. ramulosus*; AMI (11) p. 84j.
- †*Haploocrinus stellaris*; SOBOLEW (304) pp. 68, 70.
- †*Hexacrinus*—*H. callosus*; MALLADA (208) p. 17. *H. echinatus*; USSHER (323) p. 16.
- †*Homocrinus scoparius*, added notes; TALBOT (312) p. 19, pl. iii.
- †*Ichthyocrinus*—*I. laevis*; UDDEN (320) p. 402. *I. schucherti* n. sp., New Scotland Limest., Clarksville, N.Y.; TALBOT (312) p. 30, pl. iii. *Isocrinus*, vide sub *Pentacrinus*.
- †*Lyriocrinus*? *beecheri* n. sp., Chazy Limest., L. Champlain, N. Y.; HUDSON (144) p. 277, pl. ii.
- †*Maragnicrinus* n. g. [of *Scytalecrinidae*?], with genotype *M. portlandicus* n. sp., Portage group, Portland, Lake Erie, includes specimen refd. by J. M. CLARKE to *Scytalear. ornatisimus* (Hall sub *Cyathocr.*); WHITFIELD (339) pp. 17, 18, pl. i: see also CLARKE (58).
- †*Mariocrinus*—*M. beecheri* n. sp., Coeymans Limest., North Litchfield, N. Y. (pl. i), *M. plumosus*, called genotype [but *M. nobilissimus* is that]; TALBOT (312) p. 25.
- †*Marsupites*—*M. ornatus* Sow. [sic] slight variations, Westphalia; WEGNER (333) pp. 124, 125, 128, 129, 130, 131, 134, 147. *M. testudinarius*; JUKES-BROWNE (150) p. 39; LAMBERT (169) p. 95; WHITE (338) pp. 470, 473; YOUNG (347) pp. 196, 215.
- †*Melocrinus*—*M.* (vel *Ctenocr.*) sp. columnals; HAUG (130) p. 766. *M. clarkei*; CLARKE (57) p. 43. *M. nobilissimus* (Hall sub *Mariacr.* 1859) called genotype [N.B. *Melocr.* = 1826; this is really *Mariacr.*], added notes (p. 26, pl. ii), *M. pachydactylus*, added notes (p. 27, pl. i); TALBOT (312).
- †*Mesocrinus* *fischeri*, vide sub *Bourgueticr.*
- †*Mespilocrinus* *granifer*; MALLADA (208) pp. 182, 183.
- †*Millericerinus*—*M. beaudouini*, *M. beaumonti*, *M. buchananus*, *M. conicus*, *M. convexus*, *M. desori*, *M. dilatatus*, *M. dudressieri*, *M. escheri*, *M. goldfussi*, *M. goupilianus*, *M. granulosus*, *M. horridus*, *M. milleri*, *M. munsterianus*, *M. nodotianus*, *M. regularis*, *M. scalaris*, *M. thirriai*; MAIRE (206) pp. 235–240.
- †*Pachylocrinus*—*P. merope* (p. 119), *P. paternus* (p. 120); CLARKE (60). *Pentacerinula* nom. nov. pro “pentacrinoid larva” of *Antedon* etc.; MINCKERT (214) p. 191.
- Pentacrinus* (including *Balanocr.* (q. v.), *Extraer.* [i.e. *Pentacr.* s. str.] and *Isoer.* [i.e. *Pentacr.* neontologorum] syn. *Cainocr.*).
- †*Pentacr.* sp.; SCHUMACHER (295) p. 111: columnals, Trias; TOULA (317) p. 348, pl. vi. *P. amblyscalaris*; MAIRE (206) p. 241. *P. angulatus*; ROTHPLETZ (281) p. 29. *P. astralis*; HUCKE (143) p. 167, pl. xxiii. *Extraer. babeau*; LISSAJOUS (183) p. 692. *P. bajocensis*; op. cit. p. 691; KILIAN (156) p. 743. *P. basaltiformis*; SCALIA (288). *P. cf. basaltiformis*; ROTHPLETZ (281) p. 29. *P. cf. bavaricus*; TOULA (318)

- p. 286. *P. briareus*; SCALIA (288). *Extracr. buchsgauensis*; MAIRE (206) p. 241. *P. carinatus*, notes; WEGNER (333) pp. 125, 148. *P. cristagalli*; DENINGER (73) pp. 438, 439; KILIAN (156) p. 743; LISSAJOUS (183) p. 691; ROTHPLETZ (281) p. 36.
- P. decorus*, anat.; REICHENSPERGER (267).
- † *P. didactylus*; DOUVILLÉ (83) pp. 20, 21, 27, 43, 50. *P. dixonii*?; ROESSINGER (278) p. 437. *P. fuchsii*; BAKALOW (13). *P. gustaldii*; AIRAGHI (5) p. 45. *P. hiemeri*; LANKESTER (175) p. 287, fig. *P. laevigatus*; BAKALOW (13). *P. marioni*; MAIRE (206) p. 241. *P. cf. nodulosus*; WEGNER (333) pp. 131, 148. *P. oxy scalaris*; MAIRE (206) p. 240. *P. pentagonalis ferratus*, discussed (p. 81), *P. cf. personatus*, specimens from Esch and Rombach descr. (pp. 76, 456, pls. i, ii); BENECKE (29). *P. priscus* Kut.; JONKER (148) p. 141. *P. psilonotus*; ROTHPLETZ (281) p. 29. *P. scalaris*; SCALIA (288). *P. subangularis*, Schwabens Medusenhaupt; KOKEN (165) p. 56, pl. *Extracr. aff. subangularis*; BAKALOW (13). *P. tuberculatus*; op. cit.: PAULKE (243) p. 269. *P. wurttembergicus* (= *P. pentagonalis opalinus* Qu.), discussed; BENECKE (29) p. 81.
- P. wyville-thomsoni*; ALBERT (9); RICHARD (276) p. 3.
- † *Platycrinus*:—*P. bozemaniensis*; DOUGLASS (82) pp. 417, 421, 422, 423. *P. contritus*; CLARKE (60) p. 120. *P. douglassi*; DOUGLASS (82) pp. 417, 422, 423. *P. gigas* (p. 184), *P. granulatus* (p. 187); MALLADA (208). *P. graphicus*; CLARKE (60) p. 120. *P. huntsvillae*; ULRICH (321) pp. 42, 47, 50, 58, pl. vi. *P. richfieldensis*; CLARKE (60) p. 120.
- † *Plicatocrinidae*, n. g. *Pseudosaccocoma* q. v.; REMEŠ (269).
- † *Poteriocrinus*:—*P. sp.*; FOUREAU (96) p. 574; THÉVENIN (314): columnals; HAUG (130) pp. 783, 793, pl. xv. *P. crassus*; MALLADA (208) pp. 182, 184, 186, 187, 196, 316. *P. douglassi*; DOUGLASS (82) p. 417. *P. minutus* (pp. 119, 170, 185, 188, 189, 197), *P. originarius* (pp. 183, 186); MALLADA (208).
- † *Pradocrinus baylei*; MALLADA (208) pp. 12, 16, 21, 37.
- Promachocrinus* restricted to spp. with branched arms [genotype *P. kerguelensis*] (p. 494). *P. vanhooffenianus* n. sp., 66° 2' 9" S., 89° 38' E., 350–400 m. (p. 496 and text-fig.); MINCKERT (213).
- † *Pseudosaccocoma* n. g. of *Plicatocrinidae*? with genotype *P. strambergense* n. sp., Tithonian of Stramberg; REMEŠ (269) p. 62, pl. vii and (273).
- † *Pterocrinus*:—*P. acutus*, *P. capitalis*, *P. depressus*; ULRICH (321) pp. 58, 61, pl. vi.
- † *Reteocrinus o'realli*, fixed pinnules, tegmina; SPRINGER (306) p. 107, pl.
- † *Raphanocrinus gemmeus* n. sp., Chazy Limest., L. Champlain, N. Y.; HUDSON (144) p. 280, pl. ii.
- Rhizocrinus lofotensis*; NORDGAARD (230) pp. 159, 241: (?); KEMP (152) p. 187: distrib.; DOEDERLEIN (80) p. 402.
- † *Rhodocrinus*:—*R. sp.* columnals; HAUG (130) p. 795, pl. xv. *R. bozemaniensis* (pp. 417, 421), *R. bridgereensis* (pp. 417, 422); DOUGLASS (82). *R. crenatus*; MALLADA (208) p. 27. *R. douglassi*; DOUGLASS (82) pp. 417, 421, 422. *R. pinnatus*; MALLADA (208) p. 21.
- † *Saccocrinus christyi*; UDDEN (320) p. 402.
- † *Scaphiocrinus*:—*S. corycia*, *S. crineus*, *S. subcarinatus*; CLARKE (60) p. 121.
- † *Scyphocrinus elegans*; MALLADA (207) p. 294 and (208) p. 61.
- † *Scytalocrinus ornatissimus* (Hall, sub *Cyathocrin.*); CLARKE (57) p. 44 and (58): vide etiam *Maragnicr.*
- † *Siphonoocrinus armosus*; UDDEN (320) p. 402.
- † *Steganocrinus sculptus*; ROWLEY (282) p. 310.
- Stylocrinoidae* ord. nov. “die recenten festesitzenden Formen”; MINCKERT (213) p. 496.

- †*Talarocrinus*; ULRICH (321) p. 54.
 †*Taxocrinus*:—*T. communis* (p. 121), *T. kelloggi* (p. 122), *T. tardus* (p. 122); CLARKE (60).
 †*Thiolierricrinus*:—*T. sp.*; REMES (270, 271, 274), *T. flexuosus* (p. 61, pl. vii), *T. heberti* (p. 60); REMES (269).
 †*Thysanocrinus arborescens* n. sp., Coeymans Limest., North Litchfield, N. Y.; TALBOT (312) p. 23, pl. i.
 †*Uintacrinus*:—*U. sp.*, British; WHITE (338) p. 470; YOUNG (347) pp. 197, 215. *U. westfalicus*, cups; WEGNER (333) pp. 121, 123, 137, 147.

(G.)—†CYSTIDEA*

(including EDRIOASTEROIDEA).

- Agelocrinus dicksoni*; AMI (11) p. 84J. *A. chapmani*, vide Corrigenda.
Caryocrinus ornatus; UDDEN (320) p. 399.
Caryocystis rouvillei; DEPÉRET (74) p. 434.
Corylocrinus pyriformis; DEPÉRET (74) p. 434.
Echinosphaera baltica; DEPÉRET (74) p. 434. *E. cf. baltica*; BRESSON (41) p. 91; MALLADA (207) p. 307. *E. murchisoni*; op. cit. pp. 267, 384.
Eocystis primaeva at Coulouma; MIQUEL (216) p. 476.
Glyptocystis forbesi; RAYMOND (265) p. 357.
Malocystis sp.; RAYMOND (265) p. 358. *M. emmonsii* n. sp., Chazy Limest., L. Champlain, N. Y.; HUDSON (144) p. 270, pl. i; CLARKE (60) p. 119; RAYMOND (265) pp. 357, 358. *M. murchisoni*; op. cit. pp. 357, 363, 364.
Palaeocystis sp. (p. 358), *P. tenuiradiata* (p. 357); RAYMOND (265).
Pleurocystis squamosa; AMI (11) p. 84J.
Stromatocystis cinnati (Miquel, sub *Trochocystis*), Cambrian, Coulouma, Aude, redescr. and now first figd.; MIQUEL (216), pp. 476, 482, pl. xv.
Trochocystis sp., nondescr. (p. 476), *T. barrandei* (pp. 474, 475); MIQUEL (216). *T. bohemica*; MALLADA (207) pp. 27, 66.

(H.)—†BLASTOIDEA.

- Blastoidocrinus carcharidens*; HUDSON (144) p. 272.
Codaster gracillimus, hydrospires in anal area (p. 307), pl. xxi), *C. grandis* (p. 309, pl. xxi), *C. laeviculus*, ?*Phaenoschisma* (p. 309, pl. xxi), *C. superbus* n. sp., Upper Burlington Chert, Louisiana, Mo. (p. 308, pl. xxi); ROWLEY (282).
Cryptoblastus melo; ROWLEY (282) p. 301, pl. xxi.
Lophoblastus pentagonus n. sp., Lower Carbonif. Chouteau Limest., Bowling Green, Mo.; ROWLEY (282) p. 302, pl. xxi.
Mesoblastus glaber; ULRICH (321) p. 47, (?) p. 57, pl. vi. *M. kirkwoodensis*?; ROWLEY (282) p. 307, pl. xxi.
Metablastus bipyramidalis with brachioles (p. 307, pl. xxi), *M. lineatus* with stem (pp. 306, 307, pl. xxi); ROWLEY (282).
Nucleocrinus verneuli; PROSSER (261).
Orophocrinus conicus? (p. 306, pl. xxi), *O. stelliformis* (p. 305, pl. xxi), ?juv. (p. 306, pl. xxi); ROWLEY (282).

† All extinct.

* Names that are sometimes given the termination -ites (e.g. *Anomalocystites*) are here treated as always ending in -us, -a, or -is, as the case may be.

Pentremites sp.; Girty (113) : [afterwards *maccalliei*]; McCallie (203).
P. cavus n. sp., Lower St. Louis Limest., near Princeton, Ky.; ULRICH (321) pp. 33, 57, pl. vi. *P. conoideus*; op. cit. pp. 30, 47, 57, pl. vi; ROWLEY (282) p. 306, pl. xxi. *P. florealis* (pp. 42, 47, 50, 58, pl. vi), *P. fohsi* n. sp., Birdsville formation of Chester group, near Princeton, Ky. (pp. 63, 64, pl. vii), var. *marionensis* n. var., Birdsville formn. near Marion, Ky. (p. 64, pl. vii), *P. godoni* (pp. 54, 58, pl. vi) & (? p. 47); ULRICH (321). *P. leda*; CLARKE (57) p. 44. *P. obesus* (pp. 63, 64, pl. vii), *P. pyramidatus* n. sp., Birdsville formn. of Chester group, W. Kentucky (p. 64, pl. vii), *P. pyriformis* (p. 57, pl. vi), *P. sulcatus* (p. 61); ULRICH (321).
Pentremitidea angulata (p. 27), *P. lusitanica* (p. 27), *P. malladae* (p. 37), *P. paillettei* & *P. schultzii* (pp. 27, 37); MALLADA (208).
Phaenoschisma acuta (p. 37), *P. archiaci* (p. 27), *P. nobile* (p. 37), *P. verneuili* (p. 27); MALLADA (208).
Schizoblastus sayi, covering plates; ROWLEY (282) p. 302, pl. xxi.
Troostocrinus hispanicus; MALLADA (208) p. 37.

(K.)—†INCERTAE SEDIS.

Astrechinus pentagonus nom. nud.; JAEKEL (145).

Paropsonema cryptophysa [sic] Clarke (1900) not an Echinoderm but cast of a jelly-fish allied to *Porpita*; FUCHS (101).

† All extinct.

XV. VERMES.

BY

CORA B. SANDERS, F.L.S.

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INTRODUCTION.

THE work recorded for 1905 shows less numerous titles than that of the preceding year. A considerable number of those here recorded being really publications of previous years which were either sent late to London, or omitted. There are however a number of interesting papers on various subjects of importance ; and the new species and genera make a considerable addition to the general catalogue. Parasites have been a subject of widespread study, particularly *Ankylostoma* and *Filaria*. On the former Looss' experimental work leads to highly interesting conclusions as to the passage of the larvæ to the intestine.

Amongst the monographs dealing with faunistic questions are EISEN, COE, *Nemertinea* of California from the Harriman Expedition, etc. ; and KATHERINE BUSH, *Tubicolous Annelids* from Alaska. Also a series of papers by BENHAM on New Zealand earth-worms. Italian *Oligochaeta* are dealt with by DE MARTIS ; parasitic faunas appear also treated at some length in the United States Fisheries Reports. The Royal Society reports on the Pearl Oyster Fisheries ; and there are amongst other treatises monographs on the Trematoda of Eastern Europe. A general Survey of Canadian parasites is also in this year's record.

The fauna of the Baikal district has received a good deal of attention, and in some papers presents bionomical material of some interest. In fact the bionomical Plankton Surveys form a distinct feature of the work of the year ; some are to hand from Belgium, from Switzerland and the North Italian Alps, as well as from lakes in S.E. Europe. The most interesting amongst these is the work by VOIGT on the distribution of Tricladida in the mountain streams of Alsace. Voigt is able to trace to an apparently sufficient cause the migration of genera, and the supplanting of one form due to the inroads made on its food supply by a competing population. The work of ZACHARIAS and HUBER on Swiss lake Rotifers is also of bionomical interest. Amongst various notes on the Tanganyika problem may be mentioned GRAVIER's paper, as the most considerable contribution. Intimately connected with this is the subject dealt with by PELSENER in his paper "Sur l'origine des animaux d'eau douce." COE's interesting paper may be mentioned here on the degenerate sense organ in terrestrial *Nemertea*, adducing their descent from marine forms.

A number of papers will be found dealing with regeneration ; and a great deal of minute histological work ; in some cases these subjects are treated in connection with physiological problems ; NUSBAUM's paper is one of three recording the degenerate condition of the reproductive organs induced in "Starvation" experiments. TREADWELL treats of degeneration in *Heteronereis*.

Following closely upon these are the observations on the reproductive processes of the Palolo. Amongst these are papers by IZUKA & M'INTOSH. The former treats at some length of the segmental organ, the histological development of which is carefully given in the literature and should prove of great interest.

Perhaps the most important contribution to physiological knowledge is in the papers of CAMILLE SPIESS on the presence and function of cells containing biliary pigments in the digestive tracts of *Aulostoma* and *Hirudinea*. In connection with this work he makes a most valuable observation of the behaviour of the enzyme-secreting cells during digestion—noting the nuclear activity apparently quite comparable to that seen in other digesting tissues.

There is also a considerable amount of Embryological work done; several studies in developmental anatomy have thrown some light on the many phylogenetic problems with which this aggregation of groups teems.

WOLTERECK maintains in a study of its development that *Polygordius* is proved to be a true precursor of the Annelida.

Separate studies of Systematic are rare (GRAFF's on the *Turbellaria* *Acalia* may be mentioned), but numerous notes appear in the faunistic papers, see:—MICHAELSEN, VON LINSTOW, MONTICELLI, DE MARTIIS, BENHAM, KATHERINE BUSH, EISEN, ARTHUR WILLEY, MARENZELLER, A. E. SHIPLEY, HLAVA, GRAVIER, ZOUBIN, SABUSOW.

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XVII. SPONGIÆ.

BY

PROFESSOR E. A. MINCHIN.

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INTRODUCTION.

I. The Zoological Record of Sponges for 1905 includes only 48 publications, exclusive of abstracts and reviews. This number is much below the average ; but it should be noted that some of the memoirs recorded in the Record for 1904 (for instance, Nos. 36, 53A, 54) should have been included in the present Record.

II. Under the heading Biology, the most important contributions are those dealing with the skeleton. WOODLAND (47) describes the formation of spicules in Calcarea, and BüTSCHLI (4), MAAS (19), and WEINSCHENK (42) discuss the nature of the skeletal material of calcareous sponges, while VOSMAER & WIJSMAN (41) deal in a similar manner with siliceous spicules. MINCHIN (22) discusses the phylogeny of Hexactinellid sponges, and DENDY (8) develops some interesting views upon the phylogeny and inter-relationships of the Demospongiae. As regards anatomy and histology, a number of facts relating to various species are brought forward by URBAN (39) for calcareous sponges and by BAER (1), DENDY (4), KIRKPATRICK (15), PICK (28), and THIELE (36) for siliceous sponges. There are no works dealing specially with Embryology in this year's Record, and nothing to record under Physiology.

III. Under Geographical Distribution the most important memoirs are those of DENDY (4) on sponges from the Gulf of Manaar, THIELE (36) on sponges from the Coasts of Patagonia and Chili, LUNDBECK (17) on N. Atlantic sponges, and BAER (1) on sponges from E. and S. Africa. There are no contributions of any note to the geological record of sponges.

IV. The systematic portion of the Record includes much of interest, except for Hexactinellida, which are practically a blank. In *Calcarea URBAN* (39) describes new forms from California, and MINCHIN (23) attempts to unravel an extraordinary tangle of mistaken identification and nomenclature in the case of a well-known European (and probably British) species of Ascon. In *Demospongiae* we have many important additions to the systematic catalogue from DENDY (4), LUNDBECK (17), THIELE (36), SVARCHEVSKII (35), TOPSENT (37), PICK (28), and BAER (1). Scarcely less important than the additions is the elimination by SCHULZE (31) of Haeckel's so-called "Deep Sea Keratosa," long suspected, and now definitely proved, to be not sponges but Protozoa.

Owing to the many rearrangements which the systematic arrangement of the *Demospongiae* has undergone, the Recorder has not attempted to classify sponges further than suborders in the present Record, but places all categories of lower taxonomic value in alphabetical order.

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Variation in sponges, in shape, anatomy, skeletal framework and skeletal elements, pp. 38, 39 and 42; correlated and uncorrelated variation, p. 40; qualitative variation, p. 41; variation towards other species, p. 41: WILSON (46).

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(iii) Anatomy of the Soft Tissues. Canal-System.

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Canal-system of Hexactinellida; MINCHIN (22) pp. 441 & 442.

Structure of the poral and cloacal vestibules of *Cinachyra barbata* Soillas, with comparisons with other species; KIRKPATRICK (15).

Canal-system of *Hexadella indica*, pp. 61 & 62, pl. i, figg. 1-3: of *Myriastra clavosa*, pp. 73 & 74: of *Pilochrota horielli*, p. 76: of *Ecionema carteri*, p. 80: of *Tetilla poculifera*, p. 91, *T. anomala*, p. 92, and *T. limicola*, p. 94: of *Paratetilla cineriformis*, p. 98: of *Coppatias reptans*, p. 108: of *Xenospongia patelliformis*, p. 118: of *Spirastrella tentorioides*, p. 126: of *Collocalypta digitata*, p. 200: of *Hippospongia anomala*, p. 215, and *H. dura*, p. 216: of *Hircinia fusca*, p. 220, *H. tuberosa*, p. 221, *H. schulzei*, p. 222, and *H. anomala*, p. 223: of *Leucandra donnani*, p. 229; DENDY (8).

Anatomy of *Cliona chilensis*, pp. 410 & 411: of *Suberites sulcatus*, p. 417, and *S. ruber*, p. 419: of *Axinella crinita*, p. 425: of *Pseudaxinella egregia*, p. 426: of *Higginsia papillosa*, p. 428: of *Desmacidon platei*, p. 437: of *Batzella corticata*, p. 439: of *Eurypon miniaceum*, p. 446: of *Microciona discreta*, p. 448: of *Hymedesmia irritans*, p. 455: of *Oligoceras sororia*, p. 480, and *O. paupera*, p. 481: of *Aplysilla sulphurea*, p. 488, and *A. lendenfeldi*, p. 489: of *Halisarca dujardini* var. *magellanica*, p. 490; THIELE (36).

Canal-system of *Raspailia*; PICK (28) pp. 38 & 39.

Anatomy of *Tethya armata*, p. 4: of *Tethyopissa globosa*, p. 5: of *Ancorina bacillifera*, p. 7: of *Sidonops globosa*, p. 9: of *Reniera implexa*, p. 13: of *Tedania digitata*, p. 17: of *Lissodendoryx monticularis*, p. 23: of *Coppatias sansibarensis*, p. 24: of *Donatia viridis* and *D. parvistella*, pp. 26 & 27; BAER (1).

Canal-system of *Darwinella warreni*, p. clxxxi: of *Pleraplysilla minchini*, p. clxxxv; TOPSENT (37).

(iv) Skeletal System.

(a) General Accounts.—Skeleton of the genus *Raspailia*; PICK (28) pp. 41-44.

(b) Material of the Skeleton.—Nature of the material of calcareous spicules; BÜTSCHLI (4); MAAS (19); WEINSCHENK (42).

Substance of siliceous spicules termed spicopal: structure of the spicules of *Tethya lyncurium*; VOSMÄER & WIJSMAN (41).

(c) Morphology, Development and Nomenclature of Skeletal Elements.—Morphology and variation of sponge spicules; WILSON (46) pp. 38 & 39 and 42.

Morphology of monaxon spicules of Calcarea; MINCHIN (23) p. 10.

The development of the spicules of Sycons; WOODLAND (47).

Spicules of Hexactinellida; MINCHIN (22) pp. 443-447.

Morphology of the chelex and ancoræ and of their varieties, pp. 2-7: abnormal spicules of *Mycalia lingua*, pp. 31 & 32, text-fig. 1: special embryonic spicules (microscleres) in *Cladorhiza iniquidentata*, p. 93, *C. corticocancellata*, p. 96 and *Chondrocladia gigantea*, p. 106: morphology of the bipocilla of *Iophon* and *Pocillon*, p. 174: of the birotulæ, p. 197: the term sphærancora proposed for the melon-shaped ancoræ of *Melon- anchora*, p. 211, footnote, their development, p. 214; LUNDBECK (17).

(d) **Skeletal Anatomy.**—Variation in skeletal framework of sponges; WILSON (46) p. 39.
Arrangement of spicules in *Leucosolenia*; URBAN (39) pp. 43 & 44.

(v) *Histology.*

Histology of *Leucosolenia eleanor*; URBAN (39) pp. 46–55.
Structure of the scleroblasts of Sycons; WOODLAND (47) pp. 250 & 251.
Histology of *Raspailia*; PICK (28) p. 40.
Spherical cells similar to "cellules sphéruleuses" in *Hexadella indica*, p. 62, pl. i, figg. 1–3: histology of cortex of *Pilochrota hornelli*, p. 76: pigment-cells, etc, in *Ecionema laviniensis*, p. 82: fibre-cells and spherical cells, perhaps symbiotic algae, in *Coppatias reptans*, p. 108 and *Asteropus haeckeli*, p. 109: cortex and scleroblasts in *Xenospongia patelliformis*, p. 118: pigment-cells in *Reniera pigmentifera*, p. 143: cells, probably pigment-cells in *Acanthella flabelliformis*, p. 193: bands of fibrous cells in *Euspongia officinalis*, var. *ceylonensis*, p. 212, in *Hircinia schulzei*, p. 222 and *H. anomala*, p. 223; DENDY (8).

C. PHYSIOLOGY.

Vacant.

D. BIONOMICS.

Symbiotic algae? in *Coppatias reptans*, p. 108 and *Asteropus haeckeli*, p. 109; DENDY (8).

E. REPRODUCTION AND DEVELOPMENT.

Ova of *Raspailia*; PICK (28) pp. 44 & 45.

Ova with pseudopodia in *Tetilla limicola*; DENDY (8) p. 94.

Ova and embryos in *Desmacidon platei*, p. 437: in *Aplysilla lendenfeldi*, p. 489; THIELE (36).

Embryos in *Megalopastas elegans*; DENDY (8) p. 205.

Embryos in *Esperiopsis villosa*, pp. 12 & 13: in *Asbestopluma pennatula*, p. 50, *A. furcata*, p. 57, *A. cupressiformis*, p. 61, *A. lycopodium*, p. 65, and *A. infundibulum*, p. 71 (comparison of spiculation of embryos of *Asbestopluma* spp. p. 74): in *Cladorhiza abyssicola*, p. 82, *C. gelida*, p. 86, and text-fig. 2, *C. tenuisigma*, p. 90, *C. iniquidentata*, p. 92, text-fig. 4, *C. corticocancellata*, p. 96, text-fig. 5, and *C. oxeata*, p. 100, text-fig. 6: in *Chondrocladia gigantea*, p. 106: in *Homaeodictya flabelliformis*, p. 120: in *Myxilla incrustans*, p. 137, *M. fimbriata*, p. 143, *M. brunnea*, p. 146, *M. pedunculata*, p. 149, and *M. diversiancorata*, p. 151: in *Lissodendoryx stipitata*, p. 172: in *Iophon piceus*, p. 179: in *Forcepia fabricans*, p. 203, and *F. thielei*, p. 208; LUNDBECK (17).

F. MISCELLANEA.

Bibliography.—Titles of 19 memoirs on sponges with abstracts; MAAS (20).—Titles of 52 memoirs on sponges, with abstracts; WELTNER (43).—Special Bibliography of the Ceylon Sponge-Fauna; DENDY (8) p. 59.

Bibliography of the genus *Raspailia*; PICK (28) pp. 2–6.

Technique.—Methods for studying calcareous sponges; URBAN (39) pp. 33–36.—Methods used for the investigation of *Raspailia*; PICK (28) pp. 36 & 37.

Economics.—Economic notes on Western Australian sponges; WHITELLEGGE (44).

III. DISTRIBUTION.

A. GEOGRAPHICAL.

a. MARINE.

(i) **General.**—Oceanographical relations of sponges; JOUBIN (14). Geographical distribution of *Raspailia*; PICK (28) pp. 45 & 46.

(ii) **Atlantic Ocean and Adjacent Seas.**—North Atlantic Monaxonida collected by the Ingolf Expedition, *Esperiopsis*, *Mycale*, *Asbestopluma*, *Cladorhiza*, *Chondrocladia*, *Artemisina*, *Homaeodictya*, *Dendrocellea* n. g., *Myxilla*, *Lissodendoryx*, *Iophon*, *Iotrochota*, *Forcepia*, *Melananchora*, in all 69 spp., of which 33 nn.; LUNDBECK (17).

Skerries, Co. Dublin, list of 10 sponges found; COLGAN (7).

Straits of Dover, 4 spp. added to the faunistic list; HALLEZ (11).

Norwegian fiords, list of 9 spp. of sponges dredged; NORDGAARD (25) p. 156.

Lesina Adriatic, *Darwinella dalmatica*, n. sp.: Coast of France, Courseulles (Calvados), *Pleraplysilla minchini*, n. sp.: Azores, *Darwinella duplex* n. sp.; TOPSENT (37).

Adriatic, 7 spp. of *Raspailia*, 3 nn.; PICK (28).

Black Sea, *Halichondria*, *Pellina*, *Petrosia*, *Reniera*, *Pachychalina*, *Esperella*, *Myxilla*, *Stylopus*, *Raspailia*, *Suberites*, *Protosuberites* n. g., *Cliona*, *Kowalewskyella* n. g., in all 32 spp., of which 8 nn.; SVAROHEVSKII (35).

(iii) **Indian Ocean and Adjacent Seas.**—Zanzibar, Cape Town, and Papeete, *Tethya*, *Tethyopilla*, *Ancorina*, *Sidonops*, *Halichondria*, *Reniera*, *Pachychalina*, *Siphonochalina*, *Tedania*, *Mycale*, *Dendoryx*, *Lissodendoryx*, *Coppatias*, *Donatia*, in all 20 spp., of which 15 nn., with 3 n. varr.; BAER (1).

Gulf of Manaar and Ceylon seas, *Hexadella*, *Dercitopsis* n. g., *Plakinastrella*, *Stæba*, *Myriastra*, *Pilochrota*, *Stelletta*, *Ecionema*, *Geodia*, *Tetilla*, *Craniella*, *Paratetilla* n. g., *Discodermia*, *Aciculites*, *Taprobane* n. g., *Petromica*, *Coppatias*, *Asteropus*, *Cryptotethya* n. g., *Tethya*, *Xenospongia*, *Hymedesmia*, *Spirastrella*, *Placospongia*, *Negombata* n. g., *Cliona*, *Suberites*, *Chondrilla*, *Chondrosia*, *Gelliodes*, *Toxochalina*, *Strongylophora* n. g., *Reniera*, *Petrosia*, *Halichondria*, *Trachyopsis* n. g., *Pachychalina*, *Chalina*, *Ceraochalina*, *Siphonochalina*, *Desmacella*, *Acanthoxifer* n. g., *Esperella*, *Paresperella* n. g., *Iotrochota*, *Phlaeodictyon*, *Histoderma*, *Myxilla*, *Clathria*, *Raspailia*, *Agelas*, *Echinodictyum*, *Aulospongus*, *Acarnus*, *Cyamom*, *Plocamia*, *Bubaris*, *Rhabdermia*, *Spongisorites*, *Hymeniacidon*, *Thrinacophora*, *Axinella*, *Phakellia*, *Acanthella*, *Auleta*, *Leucophlaeus*, *Ciocalypta*, *Collocalypta* n. g., *Darwinella*, *Megalopasta* n. g., *Spongelia*, *Psammopemma*, *Cacospongia*, *Euspongia*, *Hippospongia*, *Phyllospongia*, *Hircinia*, *Aplysina*, *Leucosolenia* (*Clathrina*), *Leucandra*, *Heteropegma*, in all 145 spp., of which 77 nn., with 23 n. varr.: complete list of Ceylon sponge-fauna, pp. 230–234; DENDY (8).

Maldives, *Darwinella gardineri* n. sp.: Natal Coast, *D. warreni* n. sp.; TOPSENT (37).

Singapore, *Cinachyra*, *Aurora*, *Ancorina*, *Spirastrella*, *Esperella*, *Rhaphidophlus*, *Aulena*, *Gelliodes*, *Spongelia*, *Petrosia*, *Reniera*, *Cacochalina*, *Cladochalina*, *Pachychalina*, *Euchalina*, *Euspongia*, *Hippospongia*, in all 24 spp.; DRAGNEWITSCH (9).

Western Australia, economic notes on 5 spp. of sponges; WHITELEGGE (44).

(iv) **Pacific Ocean and Adjacent Seas.**—Coast of British Columbia, *Esperella bellabellensis* n. sp.; LAMBE (16).

Sponges of coasts of S. America, Mexico, and Galapagos Is. [see IV, A]; WILSON (46).

Monterey Bay, California, *Leucosolenia*, *Sycandra*, *Rhabdodermella*, *Leucandra*, in all 5 spp., of which 4 nn.; URBAN (39).

Mangareva, Gambier Islands, *Cliothoosa seurati* n. g., n. sp.; TOPSENT (38).

Coasts of Chili and Patagonia and Straits of Magellan, *Geodia*, *Donatia*, *Cliona*, *Clionopsis* n. g., *Polymastia*, *Prosuberites*, *Suberites*, *Hymeniacidon*, *Vosmaeria*, *Axinella*, *Pseudaxinella*, *Plicatella*, *Higginsia*, *Tedania*, *Biemna*, *Desmacidon*, *Batzella*, *Eperiopsis*, *Mycale*, *Myxilla*, *Iophon*, *Eurypon*, *Microciona*, *Clathria*, *Ophlitaspomphia*, *Hymedesmia*, *Stylocellopsis* n. g., *Halichondria*, *Reniera*, *Pellinella* n. g., *Pachychalina*, *Chalina*, *Acerychalina*, *Oligoceras*, *Cacospongia*, *Spongia*, *Hircinia*, *Spongelia*, *Aplysilla*, *Halisarca*, in all 80 spp., of which 67 nn.; THIELE (36).

β. FRESHWATER SPONGES.

Freshwater sponges as bearing on the question of the origin of freshwater fauna; PELSENEER (27) pp. 704, 705, 708.

Ireland, localities for *Euspongilla lacustris* and *Heteromeyenia ryderi*; STEPHENS (34).

Lakes of S. Tyrol, spicules of *Euspongilla lacustris*; HUBER (13) p. 74.

Winter-fauna of Lake Kaban, *Euspongilla lacustris* and *Ephydatia mülleri*; MEISSNER (21) p. 108.

B. GEOLOGICAL.

(i) GENERAL.

Vacant.

(ii) CAINOZOIC.

Pleistocene:—Lower Saarian (Saharian ?) near Reggio, Calabria, tetractinellid sponge-spicules; NEVIANI (24).

(iii) MESOZOIC.

Cretaceous:—Cretaceous of the Iser region, sponges, pp. 18, 21, 22, 55, 56, 159, 168, 183, 184; ZAHÁLKA (48).—Lower Cretaceous of the Jura of Neuchâtel, fossil sponges; SCHARDT & DUBOIS (30) pp. 268, 276, 285.—Government of Ekaterinoslaw, 7 spp. of fossil sponges; FAVRE (10).

Jurassic:—Upper Jurassic of Hungary, 2 fossil sponges; PAPP (26) p. 81.—Upper Jurassic of the Jura of Neuchâtel, 6 spp. of sponges; SCHARDT & DUBOIS (30) p. 236.—Tithonian of Stramberg, Moravia, list of sponges; REMEŠ (29).

Trias:—Upper Keuper (Pachycardientuffe) of South Tyrol, three sponges; BLASCHKE (3) pp. 164, 165.

(iv) PALÆOZOIC.

General:—Type-specimens of palæozoic N. American sponges in the New York State Museum; CLARKE (6).

Devonian:—Hamilton group, Indiana, nn. spp. of *Hindia*, *Somphospongia*, and *Vermispongia* n. g.; WHITFIELD (45).

Silurian:—of Victoria and Queensland, spp. of *Receptaculites*; CHAPMAN (5).

Ordovician:—Chazy-formation, *Eospongia varians* and *Strephochetus* spp.; SEELY (33).

IV. SYSTEMATIC.

A. PORIFERA, GENERAL.

The Non-Calcarea considered as a class and divided into Myxospongida, Triaxonida, Tetraxonida, and Euceratosa, "four natural groups... which may be conveniently regarded as of ordinal rank"; DENDY (8) p. 60.

List of sponges from coasts of S. America, Mexico, and Galapagos Is., nearly all cited as "nov. spp." but without descriptions: WILSON (46). Catalogue of type-specimens of palaeozoic sponges in the New York State Museum: CLARKE (6).

B. CALCAREA.

(i) HOMOCÆLA.

Clathrina (*Ascandra*, *Leucosolenia*) *contorta* Bwk., description and synonymy: includes *Ascertta spinosa* Lend.: MINCHIN (23).

Leucosolenia Bow., defined; DENDY (8) p. 226.—*L.* (*Clathrina*) *coriacea* Mont., var. *ceylonensis*, n. var.: DENDY (8) p. 226, 227, pl. xiii, fig. 8.—*L. eleonor*, n. sp. Monterey Bay, California: URBAN (39) pp. 36–55, pl. vi, figg. 1–62, pl. vii, figg. 63–68.—*L.* (*Clathrina*) *tenuipilosa*, n. sp., Ceylon seas: DENDY (8) pp. 227, 228, pl. xiii, fig. 9.

(ii) HETEROCÆLA.

Amphoriscidae, defined: DENDY (8) p. 229.

†*Eudea* sp.: BLASCHKE (3) p. 165.

Grantia compressa, spicule-formation: WOODLAND (47).

Grantiidæ, defined: DENDY (8) pp. 228.

Heteropegma Polej., defined, p. 230; *H. nodus-gordii* Polej., p. 230: DENDY (8).

Leucandra H., defined; DENDY (8) p. 228.—*L. apicalis*, n. sp., Monterey Bay, California: URBAN (39) pp. 67–70, pl. vii, figg. 89–107.—*L. donnani*, n. sp., Gulf of Manaar: DENDY (8) pp. 228, 229, pl. xiii, fig. 10.—*L. heathi*, n. sp., Monterey Bay, California: URBAN (39) pp. 59–67, pls. viii, ix.

Sycon seu *Sycandra*, *S. coacta*, n. sp., Monterey Bay, California: URBAN (39) pp. 55–59, pl. vii, figg. 69–88.—*S. ciliatum* and *S. coronatum*, spicule-formation: WOODLAND (47).

C. HEXACTINELLIDA.

(i) LYSSACINA.

†*Receptaculites australis*, pl. i, figg. 2–7, pl. ii, pl. iii, figg. 2–7, pp. 7–9; Queensland specimens, pp. 9–12: CHAPMAN (5), P. Soc. Victoria xviii.—

†*R. fergusoni*, n. sp., Silurian, Gippsland: CHAPMAN (5) p. 6, pl. i, figg. 1, 3, and pl. iii, fig. 1, P. Soc. Victoria xviii.

(ii) *DICTYONINÆ.*

- †*Craticularia vulgata* Poč. : ZAHÁLKA (48) pp. 183, 184.
 †*Cribrospongia reticulata* : FAVRE (10) p. 96.
 †*Pleurostoma bohemicum* : ZAHÁLKA (48) pp. 22, 159, 168.
 †*Plocoscyphia* sp. : FAVRE (10) p. 98 ; ZAHÁLKA (48) pp. 22, 55, 159.
 †*Pyrospongia vrbæi* Zah. : ZAHÁLKA (48) pp. 183, 184.
 †*Scyphia beaumonti* : FAVRE (10) p. 97.
 †*Ventriculites angustatus* : ZAHÁLKA (48) pp. 22, 159, 168.—† *V. cervicornis*, p. 95 ; † *V. interruptus*, p. 95 ; † *V. pedestris*, p. 94 ; † *V. radiatus*, p. 94 : FAVRE (10).—*V. sp.* : ZAHÁLKA (48) pp. 18, 22, 159.

D. DEMOSPONGIÆ.

Tetraxonida, defined to include all Demospongiae except Myxospongiae and Keratosa : DENDY (8) pp. 63, 64.

(i) *TETRACTINELLIDA.*

Tetractinellida, defined and divided into two Suborders—(1) Homosclerophora = Microsclerophora Sollas, "in which microscleres and megascleres are not yet sharply differentiated from one another and no trienes are developed" (p. 64), (2) Astrophora (p. 67), (3) Sigmatophora (p. 89) ; the group Carnosa to be abandoned, the Microsclerophora to be placed among Tetractinellida as a Suborder Homosclerophora, the Microtriænosa to be placed amongst the other triæne-bearing Tetractinellida, and the Oligosilicina to be placed near the *Tethyidae*, pp. 64, 65 : DENDY (8).

(1) Sub-order CHORISTIDA.

- Ancorina* O., defined : BAER (1) p. 6 ; DRAGNEWITSCH (9) p. 12.—*A. bacillifera* (Carter), described : BAER (1) pp. 6–9, pl. i, fig. 3, pl. iii, figg. 11–19.—*A. simplex* Lend., described : DRAGNEWITSCH (9) pp. 12, 13.
- Aurora* Soll., defined, p. 10 ; *A. globostellata* Carter, described, p. 11 : DRAGNEWITSCH (9).
- Calcabrina* Sollas, a synonym of *Stæba* Sollas, q. v. ; DENDY (8) p. 70.
- Cinachyra* Sollas, defined : DRAGNEWITSCH (9) p. 9.—*C. barbata* Soll., structure of the oscules and comparisons with other species : KIRKPATRICK (15).—*C. voeltzkowi* Lend., described : DRAGNEWITSCH (9) pp. 9, 10.
- Corticium plicatum* O. S., referred to *Stæba* Sollas, q. v. : DENDY (8) p. 70.
- Craniella* O. S., defined, p. 95 ; *C. elegans*, n. sp., Gulf of Manaar, 11½–36 fathoms, pp. 95, 96, pl. iv, fig. i : DENDY (8). (See also *Tethya* infra.)
- Dercitopsis*, n. g. of *Plakinidae*, for *D. ceylonica*, n. sp. from off Galle, 100 fathoms : DENDY (8) pp. 65–67, pl. ii, fig. i.
- Ecionema* Bow., defined, p. 79 ; *E. carteri*, n. sp. from Gulf of Manaar and Ceylon Seas, shallow water to eight fathoms, pp. 79–81, pl. i, fig. 5, pl. iii, fig. 1 ; *E. lavinensis*, n. sp. from off Mount Lavinia, 30 fathoms, pp. 81, 82, pl. iii, fig. 2 : DENDY (8).
- Geodia* Lam., defined, p. 83 ; *G. areolata* Carter, described, pp. 87, 88 : DENDY (8).—*G. magellani* Soll., described : THIELE (36) p. 408.—*G. perarmata* Bow., described, pp. 83–85 ; *G. peruncinata*, n. sp. from 12 miles off Galle, 100 fathoms, pp. 85–87, pl. iii, figg. 3, 3A, 3B ; *G. ramodigitata* Carter, described, pp. 88, 89 : DENDY (8).
- Geodiidae*, defined : DENDY (8) p. 83 ; BAER (1) p. 9.
- Myriastera* Sollas, defined, p. 71 ; *M. clavosa* (Ridley), described, p. 72 ; *M. tethyopsis* (Carter), described, pp. 72–74 : DENDY (8).

- Pachastrellidae*, definition : DENDY (8) p. 67.
Paratetilla, n. g. for *Tethya merguiensis* Carter, and *P. cineriformis*, n. sp., Gulf of Manaar and Ceylon Seas : DENDY (8) pp. 97, 98, pl. iii, fig. 7.
Pilochrota Sollas, defined, p. 74 ; *P. haeckeli* Sollas, described, pp. 74, 75, pl. ii, fig. 4 ; *P. hornelli*, n. sp. from Galle, shallow water, pp. 75-77, pl. ii, fig. 5 : DENDY (8).
Plakinastrella Schulze, defined, to be removed from *Plakinidae* to *Pachastrellidae*, p. 67 ; *P. intermedia*, n. sp. from off Galle, 100 fathoms, pp. 67-69, pl. i, fig. 4, pl. ii, fig. 2 ; *P. schulzei*, n. sp. from off Galle, 100 fathoms, pp. 69, 70, pl. ii, fig. 3 : DENDY (8).
Plakinidae, definition and affinities, the genus *Plakinastrella* to be removed from it : DENDY (8) p. 65.
Samus simplex Carter, referred to *Steba* Sollas, q. v. : DENDY (8) p. 70.
Sidonops Sollas, defined, p. 9 ; *S. globosa*, n. sp., Cape Town, pp. 9, 10, pl. i, fig. 4, pl. iv, figg. 1-6 : BAER (1).
Stellella O. S., defined, p. 77 ; *S. herdmani*, n. sp., Gulf of Manaar and off Galle, up to 100 fathoms, pp. 77, 78, pl. ii, fig. 6 ; *S. vestigium*, n. sp. from off Talaivillu Paar, 10-14 fathoms, pp. 78, 79, pl. ii, fig. 7 : DENDY (8).
Stellettidae, defined : BAER (1) p. 6 ; DENDY (8) p. 71.
Steba Sollas, defined, to be retained distinct from *Dercitus* for *Samus simplex* Carter, *Corticium plicatum* O. S., and *S. extensa* n. sp., and to include *Calcabrina* Sollas, p. 70 ; *S. extensa*, n. sp. from off Mutwal Island, 10-35 fathoms, pp. 70, 71, pl. v, fig. 1 : DENDY (8).
Tethya Lam., genus defined, p. 4 ; *T. armata*, n. sp., Zanzibar, pp. 4, 5, pl. i, fig. 1, pl. iii, figg. 1-5 : BAER (1).
Tethyopsis Lend., defined, p. 5 ; *T. globosa*, n. sp., Zanzibar, pp. 5, 6, pl. i, fig. 2, pl. iii, figg. 6-10 : BAER (1).
Tethyopsisillidae, defined : BAER (1) p. 5.
Tetilla O. S., defined, p. 89 ; *T. anomala*, n. sp., Coast of Ceylon, 10-36 fathoms, pp. 91-93, pl. iii, fig. 5 ; *T. hirsuta* Dendy, described, pp. 89, 90 ; *T. limicola*, n. sp., Tamblegam Lake, Trincanalee, pp. 93-95, pl. i, fig. 7, pl. iii, fig. 6 ; *T. poculifera*, n. sp. from Gulf of Manaar and W. Coast of Ceylon, deep water, pp. 90, 91, pl. i, fig. 6, pl. iii, fig. 4 : DENDY (8).
Tetillidae, defined : DENDY (8) p. 89.

(2) LITHISTIDA.

Lithistida, definition and characters : DENDY (8) p. 99.

- Aciculites* O. S., defined, should be referred to the *Azoricidae*, p. 101 ; *A. orientalis*, n. sp., Ceylon seas, pp. 101, 102, pl. iv, fig. 3 : DENDY (8).
Discodermia Bocage, defined, p. 99 ; *D. emarginata*, n. sp. from 12 miles off Galle, 100 fathoms, pp. 99-101, pl. iv, fig. 4 : DENDY (8).
† *Eospongia varians*, described : SEELY (33) pp. 153, 154.
† *Hindia indianensis*, n. sp., Hamilton group, Indiana ; WHITFIELD (45), p. 299, pl. x, figg. 1-6, Bull. Amer. Mus. xxi.
Petromica Topsent, defined, p. 104 ; *P. massalis*, n. sp., Gulf of Manaar and W. coast of Ceylon, pp. 104, 105, pl. iv, fig. 5 : DENDY (8).
Taprobane, n. g., might be referred to either *Azoricidae* or *Scleritoderidae*, and necessitates a revision of Sollas's classification of Lithistida, p. 102 : for *T. herdmani*, n. sp., Gulf of Manaar, 9 fathoms, pp. 103, 104, pl. i, fig. 8, pl. iv, fig. 2 : DENDY (8).

(ii) MONAXONIDA.

Monaxonellida, defined and subdivided into Astromonaxonellida and Sigmatomonaxonellida : DENDY (8) pp. 105, 106.

(a). Order HADROMERINA.

Astromonaxonellida, defined, "practically equivalent to the Hadromerina," with addition of *Chondrosidæ*: DENDY (8) pp. 106, 107.

Asteropus Sollas, defined, p. 109; *A. haekeli*, n. sp., Gulf of Manaar, deep water, pp. 109, 110, pl. v, fig. 3: DENDY (8).

Axosuberites Tops., to be merged in *Suberites*: DENDY (8) p. 131.

Chondrilla S., defined, p. 132; *C. australiensis* Carter, described, with var. *lobata*, n. var., pp. 132, 133: DENDY (8).

Chondrosia Nardo, defined, p. 133; *C. reniformis* Nardo, described, p. 133: DENDY (8).

Cliona Gray, defined: DENDY (8) p. 128.—*C. chilensis*, n. sp., Calbuco, Chili: THIELE (36) pp. 409-412, figg. 28, 29, 36 a-c.—*C. margaritifera*, n. sp., Gulf of Manaar: DENDY (8) pp. 128-130, pl. v, fig. 9 and text-fig. 2, p. 144.—*C. vastifica* Hanc., described: SVARCHEVSKIÍ (35), pp. 38, 39, pl. iv, fig. 12, pl. vi, fig. 6.

Clionidæ, defined: DENDY (8) p. 128.

Clionopsis, n. g. for *C. platei*, n. sp., Calbuco, Chili: THIELE (36) pp. 412-414, fig. 37, a-d.

Clithoosa, n. g., *Clionidæ*, defined (p. 95) for *C. seurati*, n. sp., Mangareva, Gambier Islands: TOPSENT (38).

Coppatias Soll., defined, p. 23; remarks on position, p. 25: BAER (1): *C.* defined, includes *Stellettinopsis* Carter: DENDY (8) p. 107.—*C. reptans*, n. sp., Cod Bay, Trincomalee, 5 fathoms: DENDY (8) pp. 108, 109, pl. v, fig. 2.—*C. sansibarensis*, n. sp., Zanzibar: BAER (1) pp. 23, 24, pl. i, fig. 13, pl. v, figg. 26-30.

Coppatiidæ Topsent, to be merged in *Epipolasidæ* Sollas, after removal of *Spongisorites* Topsent to *Axinellidæ*: DENDY (8) p. 107.

Cryptotethya, n. g., *Epipolasidæ*, for *C. agglutinans*, n. sp., Gulf of Manaar: DENDY (8) pp. 110-112, pl. v, figg. 4, 5.

Donatiida Nardo for *Tethya* Autt., defined: BAER (1) p. 26.—*D. papilloosa*, n. sp., Calbuco, Chili: THIELE (36) pp. 408, 409, figg. 24, 35 a-c.—*D. parvistella*, n. sp., Zanzibar: BAER (1) pp. 27, 28, pl. ii, g. 9, pl. v, figg. 35-38.—*D. viridis*, n. sp., Papeete: BAER (1) pp. 26, 27, pl. ii, fig. 8, pl. v, figg. 31-34.

Donatiidæ, n. nom. for *Tethyidæ*, defined: BAER (1) p. 26.

Epipolasidae Sollas, defined and reinstated to include Topsent's families *Coppatiidae*, with the exception of *Spongisorites*, and *Streptasteridæ*; DENDY (8) p. 107.

Hymedesmia Bow., defined and characterized: DENDY (8) pp. 119, 120.—*H. areolata*, n. sp., Calbuco, 40 m.: THIELE (36) pp. 452, 453, figg. 23, 68 a-d.—*H. curvistellifera*, n. sp., Ceylon seas: DENDY (8) pp. 121, 122, pl. v, fig. 6.—*H. irritans*, n. sp., Juan Fernandez, pp. 455, 456, fig. 71 a-e; *H. levis*, n. sp., Calbuco, pp. 453, 454, fig. 69 a-f: THIELE (36).—*H. stellivarians* Carter, described: DENDY (8) pp. 120, 121.—*H. tenuissima*, n. sp., Calbuco: THIELE (36) pp. 454, 455, fig. 70 a-f.

Kowalewskyella, n. g. for *K. gracilis*, n. sp., Black Sea: SVARCHEVSKIÍ (35) pp. 40, 41, & 53, pl. ii, fig. 7, pl. vii, fig. 2.

Laxosuberites Tops., to be merged in *Suberites*: DENDY (8) p. 131.

Leptosastræ constellata Topsent, position discussed: DENDY (8) p. 134.

Negombo, n. g., *Spirastrellidæ*, for *N. tenuistellata*, n. sp., from off Negombo, 12-20 fathoms: DENDY (8) pp. 127, 128, pl. v, fig. 8.

Placospongia Gray, defined and referred to *Spirastrellidæ*, p. 126; *P. carinata* (Bow.), pp. 126, 127: DENDY (8).

Polymastia isidis, n. sp., Admiralty Sound, 19 m.: THIELE (36) pp. 414, 415, figg. 25, 38 a-e.

- Prosuberites epiphytoides*, n. sp., Juan Fernandez : THIELE (36) p. 420.
Protosuberites, n. g. for *P. prototipus*, n. sp., Black Sea : SVARCHEVSKII (35) pp. 36, 37, & 52, pl. vi, fig. 5.
Spirastrella O. S., defined : DENDY (8) p. 122; DRAGNEWITSCH (9) p. 13.—
S. lacunosa Kieschnick, described : DRAGNEWITSCH (9) pp. 13, 14.—
S. tentorioides, n. sp., Ceylon seas, pp. 125, 126, pl. v, fig. 7; *S. vagabunda* Ridley, described, with four varieties, var. *trincomaliensis* R., var. *tubulodigitata*, n. var., var. *fungoides*, n. var., and var. *gallensis*, n. var., pp. 122-125 : DENDY (8).
Spirastrellidae, defined : DENDY (8) p. 119.
Stellettinopsis Carter, a synonym of *Coppatias* Sollas : DENDY (8) p. 107.
Streptasteridae Topsent, to be merged in *Epipolasidae* Sollas : DENDY (8) p. 107.
Suberites Nardo, defined, to include *Axosuberites* Tops. and *Laxosuberites* Tops. : DENDY (8) pp. 130, 131 : characters of the genus : THIELE (36) pp. 415, 416.—*S. cruciatus*, n. sp. from outside Periya Paar, 24 fathoms : DENDY (8) p. 131, pl. v, fig. 10.—*S. (Pseudosuberites) digitatus*, n. sp., Admiralty Sound : THIELE (36) pp. 417, 418, figg. 26, 40 a, b.—*S. domuncula* O.S., described : SVARCHEVSKII (35) pp. 35, 36, pl. ii, fig. 5, pl. iv, fig. 11, pl. vi, fig. 4.—*S. puncturatus*, n. sp., Coquimbo, pp. 419, 420, fig. 42 a-e; *S. ruber*, n. sp., Admiralty Sound, pp. 418, 419, figg. 31, 41 a-d; *S. (Pseudosuberites) sulcatus*, n. sp., Cape Espiritu Santo, East Tierra del Fuego, p. 417, figg. 27, 39 a-e : THIELE (36).
Suberitidae, defined, referred to *Astromonaxonellida* : DENDY (8) p. 130.
Tethya Lam., defined : DENDY (8) p. 112.—*T. lyncurium* L., described with three varieties from Ceylon : DENDY (8) pp. 112-114; structure of the spicules : VOSMAER & WIJSMAN (41). (See also *Donatia*, supra.)
Tethyidae, defined : DENDY (8) p. 112. [See also II, A.]
+ *Vivaa* sp. : ZAHÁLKA (48) pp. 22, 159.
Vosmueria reticulosa, n. sp., Iquique : THIELE (36) pp. 423, 424, fig. 45 a-c.
Xenospongia Gray, defined and referred to *Tethyidae*, p. 115; *X. patelliformis* Gray, described, pp. 116-119, pl. vi : DENDY (8).
Yvesia alecto Topsent, position discussed : DENDY (8) p. 134.

(b) Order HALICHONDRINA.

- Sigmatomonaxonellida*, defined as a suborder, and divided into three families, *Haploscleridae*, *Desmacidonidae*, and *Axinellidae*, the affinities of the group discussed : DENDY (8) pp. 133-135. [See also II, A.]
- Acanthella* O. S., defined, p. 193; *A. carteri* Dendy, described, p. 193, pl. viii, fig. 6; *A. flabelliformis* Keller, described, pp. 193, 194 : DENDY (8).
Acanthoxifer, n. g., allied to *Heteroxya* Topsent, for *A. ceylonensis*, n. sp., Gulf of Manaar, deep water : DENDY (8) pp. 156-158, pl. ix, fig. 5.
Acarnus Gray, defined, p. 177; *A. ternatus* Ridley, described, p. 177, pl. viii, fig. 4; DENDY (8).
Acervochalina variabilis, n. sp., Juan Fernandez and Punta Arenas : THIELE (36) pp. 477-479, figg. 17, 33, 96.
Agelas Duch. et. Mich., defined, p. 174; *A. ceylonica*, n. sp., Ceylon seas, pp. 174, 175, pl. xii, fig. 9; *A. mauritiana* (Carter), described, p. 174 : DENDY (8).
Amphiasrella, see under *Phlaedictyinæ*.
Artemisina Vosmaer, diagnosis, p. 110, and characters of species, pp. 116, 117; *A. apollinis* (R. & D.), diagnosis and description, pp. 114-116, pl. xiii, fig. 4 a-g; *A. arcigera* (O. S.), diagnosis and description,

- includes *A. suberitoides* Vosmaer & Fristedt, pp. 110–114, pl. i, figg. 9–11, pl. xiii, fig. 3 *a–f*; *A. suberitoides* Vosmaer & Fristedt, synonym of *A. arcigera* (O. S.), p. 113: LUNDBECK (17).
- Asbestopluma* Norman, diagnosis and position, pp. 43, 44, criticism and systematic survey of species referred to it, pp. 73–78; *A. bihamatifera* Carter, diagnosis and description, pp. 51–54, pl. ii, figg. 7, 8, pl. xi, figg. 1 *a–g*, 2; *A. comata*, n. sp., from eastern slope of the Reykjanes-ridge, 799 fathoms, pp. 72, 73, pl. ii, figg. 22, 23, pl. xii, figg. 1, *a–f*; *A. cypressiformis* Cart., diagnosis and description, includes *Esperella fristedtii* Lambe, partim, pp. 58–62, pl. ii, figg. 11–14, pl. xi, figg. 4, *a–f*, 5; *A. furcata*, n. sp., Ingolf, 537 fathoms and 450 fathoms, and East Iceland, pp. 54–57, pl. ii, figg. 9, 10, pl. xi, fig. 3, *a–h*; *A. hydرا*, n. sp., off Iceland, 1010 and 1309 fathoms, pp. 66–68, pl. ii, figg. 18, 19, pl. xi, fig. 8, *a–f*; *A. infundibulum* Levins, diagnosis and description, includes *Esperia cypressiformis* Cart. partim, and *E. bihamatifera* Hansen partim, pp. 68–72, pl. ii, figg. 20–21, pl. xi, fig. 9, *a–m*; *A. lycopodium* Levins, diagnosis and description, includes *Esperia bihamatifera* Hansen partim, and *Esperella fristedtii* Lambe partim, pp. 62–66, pl. ii, figg. 15–17, pl. xi, figg. 6, *a–d*, 7; *A. pennatula* (O. S.), diagnosis and description, includes *Cladorhiza bihamatifera* Vosmaer, *Esperia bihamatifera* Hansen, *Cladorhiza nordenskiöldii* Fristedt, and *Esperella plumosa* Arnesen, pp. 44–51, pl. ii, figg. 1–6, pl. x, figg. 4, *a–o*, 5–7: LUNDBECK (17).
- Aulena* Lend., defined, p. 17; *A. laxa*, var. *digitata* Lend., described, p. 17: DRAGNEWITSCH (9).
- Aulettia* O. S., defined, p. 194; *A. elongata*, n. sp., Gulf of Manaar and W. coast of Ceylon, pp. 195, 196, pl. xiii, fig. 7; *A. lyrata* (Esper) described, includes *A. aurantiaca* Dendy, with varr. *glomerata* n. var., *crassispiculata* n. var., and *brevispiculata* n. var., pp. 194, 195: DENDY (8).
- Aulospongia* Norman, defined and discussed, p. 176; *A. tubulatus* (Bow.), p. 176, text-fig. 5: DENDY (8).
- Axinella* O. S., defined; DENDY (8) p. 188.—*A. crinita*, n. sp., Calbuco; THIELE (36) pp. 424–426, fig. 46, *a*, *b*.—*A. halichondroides*, n. sp., Gulf of Manaar, p. 190, pl. xii, fig. 7; *A. labyrinthica* Dendy, p. 188; *A. manus*, n. sp., Gulf of Manaar, pp. 188, 189, pl. xii, fig. 8; *A. tenuidigitata*, n. sp., W. coast of Ceylon, deep water, pp. 189, 190, pl. xiii, fig. 4: DENDY (8).
- Axinellidae*, defined and discussed; DENDY (8) pp. 181, 182.
- Batzella* Topsent, discussed, p. 438; *B. corticata*, n. sp., Juan Fernandez, 30 m., pp. 438, 439, fig. 58, *a*, *b*; *B. mollis*, n. sp., Juan Fernandez, pp. 439, 440, fig. 59, *a*, *b*: THIELE (36).
- Bienna chilensis*, n. sp., Calbuco: THIELE (36) pp. 434, 435, fig. 54, *a–d*.
- Bubarinæ* to be abolished as a group: DENDY (8) p. 158.
- Bubaris* Gray, defined and discussed, p. 179; *B. eruca* (Carter) p. 180; DENDY (8).
- Cacochalina* O. S., defined, p. 23; *C. typica* Lend., described, pp. 23, 24: DRAGNEWITSCH (9).
- Ceroachalina* Lendenfeld, defined, p. 152; *C. ceylonica*, n. sp., Gulf of Manaar, pp. 154, 155, pl. vii, fig. 3, pl. x, fig. 6; *C. multiformis* Lend., var. *manaarensis* Dendy, described, p. 154, pl. vii, fig. 2; *C. retiarmata*, n. sp., from off Chilaw, 10 fathoms, pp. 152, 153, pl. x, fig. 4; *C. reticulata*, n. sp., Gulf of Manaar, pp. 153, 154, pl. x, fig. 8: DENDY (8).
- Chalina* Grant, defined, p. 150; *C. clathrata*, n. sp., Gulf of Manaar, p. 151, pl. x, fig. 3; *C. cymæformis* (Esper), described, pp. 151, 152: DENDY (8).—*C. fusifera*, n. sp., Punta Arenas: THIELE (36) pp. 476, 477, figg. 15, 32, 95.—*C. obtusispiculifera*, n. sp., W. coast of Ceylon

- and Gulf of Manaar, deep water, p. 150, pl. x, fig. 9 ; *C. subarmigera* (Ridley), described, p. 150, pl. x, fig. 5 : DENDY (8).
- Chalinidae*, characters of the family and criticism of the genera : THIELE (36) pp. 472, 473.
- Chalininae* defined, their affinities discussed : DENDY (8) pp. 147, 148.
- Chondrocladia* Wv. Thomson, diagnosis, p. 102, and list of species, pp. 109, 110 ; *C. gigantea* (Hansen), diagnosis and description, includes *Cladorhiza grandis* Verrill, *C. nobilis* Frist., *Desmacidon clavatum* Hansen, *D. nucleus* Hansen and *D. arcticum* Hansen, pp. 102-109, pl. iv, fig. 1, pl. xiii, fig. 2, a-l : LUNDBECK (17).
- Ciocalypta* Bow., defined, p. 197 ; *C. tyleri* Bow., described, with var. *aberrans* n. var., pp. 197-199 : DENDY (8).
- Cladochalina* O. S., defined, p. 24 ; *C. aurantiaca* Lend., described, pp. 24, 25 ; *C. euplax* Lend., described, p. 24 : DRAGNEWITSCH (9).
- Cladorhiza* M. Sars, diagnosis and characters, pp. 78, 79, list of species, pp. 101, 102 ; *C. abyssicola* M. Sars, diagnosis and description, pp. 79-83, pl. xii, fig. 2, a-f ; *C. abyssicola* Fristedt, a synonym of *C. oxeata*, q.v. p. 101 ; *C. abyssicola* Hansen (partim), a synonym of *C. corticocancellata* Cart. and *C. oxeata*, q.v., p. 97 ; *C. binghamifera* Vosmner, a synonym of *Asbestopluma pennatula* (O. S.), q.v., p. 50 ; *C. corticocancellata* Cart., diagnosis and description, includes *C. abyssicola* Hansen partim, pp. 93-97, pl. iii, figg. 7-9, pl. xii, fig. 6, a-f, text-fig. 5 ; *C. gelida*, n. sp., from the Norwegian Sea and Faroe Channel, 620, 1267, and 1309 fathoms, pp. 83-87, pl. iii, fig. 1, pl. xii, fig. 3, a-h, and text-fig. 2 ; *C. grandis* Verrill, and *C. nobilis* Fristedt, synonyms of *Chondrocladia gigantea* (Hansen) p. 107 ; *C. iniquidentata*, n. sp., from 63° 13' Lat. N., 6° 32' Long. W., 975 fathoms, pp. 91-93, pl. iii, fig. 6, pl. xii, fig. 5, a-e, text-fig. 4 ; *C. nordenskioldii* Fristedt, a synonym of *Asbestopluma pennatula* (O. S.), q.v. p. 50 ; *C. oxeata*, n. sp., includes *C. abyssicola* Hansen (partim) and Fristedt, Denmark Strait and North of Faroe Islands, 330-338 fathoms, pp. 97-101, pl. i, fig. 1, pl. iii, fig. 10, pl. xiii, fig. 1, a-f ; *C. tenuisigma*, n. sp. from east of Iceland, 762 fathoms, and South Jan Mayen, 1003 fathoms, pp. 87-91, pl. iii, figg. 2-5, pl. xii, fig. 4, a-e, and text-fig. 3 : LUNDBECK (17).
- Clathria* O. S., defined, to include *Rhaphidophlus* Ehlers : DENDY (8) p. 170.—*C. corallorhizoides* Frist., a synonym of *Lissodendoryx complicata* (Hans.), q.v. : LUNDBECK (17) p. 166.—*C. frondifera* (Bow.), described, includes *C. corallitincta* Dendy, pp. 170, 171 ; *C. indica* Dendy, p. 171 : DENDY (8).—*C. papillosa*, n. sp., Calbuco : THIELE (36) pp. 449, 450, fig. 66, a-e.—*C. spiculosa* (Dendy), with var. *ramosa* n. var., and var. *tessellata* n. var. : DENDY (8) pp. 171, 172, pl. viii, fig. 2.
- Collocalypta*, n. g. *Axinellidae*, for *C. digitata*, n. sp., Gulf of Manaar : DENDY (8) pp. 199, 200, pl. vii, fig. 6, pl. xiii, figg. 1, 2,
- Cotylina*, n. subg. of *Asbestopluma* ; LUNDBECK (17) p. 68.
- Cyamon* Gray, defined and discussed, pp. 177, 178 ; *C. quinqueradiatum* (Carter), described, p. 178 : DENDY (8).
- Dendoricella*, n. g. for *Dumiria* Topsent nec Keller, diagnosis, characters and list of species, pp. 126, 127 ; *D. obesichela*, n. sp. from the eastern slope of the Reykjanes-ridge, 799 fathoms, pp. 130, 131, pl. xiv, fig. 2, a-d ; *D. rhopalum*, n. sp. from Denmark Strait, south of Greenland, and Davis Strait, 1135-1695 fathoms, pp. 127-130, pl. iv, figg. 4, 5, pl. xiv, fig. 1, a-e : LUNDBECK (17).
- Dendoricinea*, to be abolished as a group : DENDY (8) p. 158.
- Dendoryx* Gray, defined, p. 21 ; *D. inaequalis*, n. sp., Papeete, p. 21, pl. i, fig. 12, pl. v, figg. 15-19 : BAER (1).—*D. incrassans* var. *viscosa* Tops., a synonym of *Myxilla rosacea* (Liebk.), q.v. : LUNDBECK (17) p. 140.—

- D. simplex*, n. sp., Cape Town; BAER (1) pp. 21, 22, pl. ii, fig. 7, pl. v, fig. 20-25.
- Desmacella* O. S., defined, p. 155; *D. tubulata*, n. sp., Gulf of Manaar, pp. 155, 156, pl. ix, fig. 4: DENDY (8).
- Desmacellinae*, defined: DENDY (8) p. 155.
- Desmacidon arctica* Hansen, *D. clavatum* Hansen and *D. nucleus* Hans., synonyms of *Chondrocladia gigantea*, q.v.: LUNDBECK (17) pp. 106, 107.—*D. ceratosa* (R. & D.), described: THIELE (36) pp. 435, 436, fig. 56, a, b.—*D. clavellata* Arnesen, a synonym of *Homaeodictya flabelliformis* (Hans.), q.v.: LUNDBECK (17) p. 120.—*D. delicata*, n. sp., Admiralty Sound, 19 m., p. 435, figs. 1, 55, a, b; *D. platei*, n. sp., Juan Fernandez, pp. 436-438, fig. 57, a-c: THIELE (36).
- Desmacidonidae*, defined, with subfamilies *Esperellinae*, *Phlaeodictyinae*, and *Ectyoninae*: DENDY (8) p. 158.—*D.*, divided into *Mycalinæ* and *Ectyoninæ*; the *Mycalinæ* divided into two groups, *Mycaleæ* (= *Esperellinae*) and *Myxilleæ* (= *Dendorycinæ*): LUNDBECK (17).
- Echinodictyum* Ridley, defined, p. 175; *E. clathratum*, n. sp., Ceylon Seas, pp. 175, 176, pl. xi, fig. 4: DENDY (8).
- Ectyoninæ*, defined: DENDY (8) p. 168.
- Ephydatia mülleri*, see III, A, β.
- Esperella* Vosmaer (seu *Esperia* O. S.), defined: DENDY (8) p. 159; DRAGNEWITSCH (9) p. 14: *E.*, to be replaced by *Mycale* Gray: LUNDBECK (17) p. 7; *E.*, defined: SVARCHEVSKIÍ (35) p. 24.—*E. bellabellensis*, n. sp., coast of British Columbia, 300 fathoms: LAMBE (16).—*E. bihamatifera* Hansen, a synonym of *Asbestopluma pennatula* (O. S.), *A. lycopodium* Levins, and *A. infundibulum* Levins, q.q.v.: LUNDBECK (17) pp. 50 and 65.—*E. crassissima*, n. sp., Ceylon Seas: DENDY (8) pp. 160, 161, pl. xi, fig. 6.—*E. foraminosa* O. S.: SVARCHEVSKIÍ (35) p. 28.—*E. fristedtii* Lambe, two of the three specimens are *Asbestopluma cupressiformis* Cart., q.v., the third is *A. lycopodium* Levins, q.v.: LUNDBECK (17) p. 62.—*E. intermedia* Vanhöffen (non Schmidt) to be *Mycale thaumatochela*, q.v.: LUNDBECK (17) p. 40.—*E. iophon*, n. sp., Black Sea: SVARCHEVSKIÍ (35) pp. 27, 28 and 51, pl. ii, fig. 6, pl. iv, fig. 7, pl. v, fig. 5.—*E. lanugo* O. S., a synonym of *Mycale ovulum* (O. S.), q.v.; LUNDBECK (17) p. 37.—*E. lorentzii* O. S., described, pp. 25-27, pl. iv, fig. 8, pl. v, fig. 3; *E. modesta* O. S., p. 28: SVARCHEVSKIÍ (35).—*E. murraiae* R. & D., described: DRAGNEWITSCH (9) pp. 14, 15.—*E. muscoidea* Tschern., described: SVARCHEVSKIÍ (35) pp. 24, 25, pl. v, fig. 4.—*E. nigricans* Frist., a synonym of *Iophon piceus* (Vosm.), q.v.: LUNDBECK (17) p. 179.—*E. parishii* Ridley, described: DENDY (8) p. 159.—*E. pattersoni* Frist. nec Bow., a synonym of *Iophon dubius* (Hans.), p. 183; *E. picea* Levinsen non Vosmaer, a synonym of *Iophon frigidus*, n. sp., p. 183: LUNDBECK (17).—*E. plumosa* Carter, described: DENDY (8) pp. 159, 160.—*E. plumosa* Arnesen, a synonym of *Asbestopluma pennatula* (O. S.), q.v.: LUNDBECK (17) p. 50.—*E. serratohamata* Carter, to be type of *Paresperella*, q.v.: DENDY (8) p. 162.—*E. stolonifera* Merejk., a synonym of *Mycale ovulum* (O. S.), q.v.; LUNDBECK (17) p. 37.—*E. tenuispiculata*, n. sp., Ceylon Seas: DENDY (8) pp. 161, 162.—*E. vosmaeri* Levinsen, a synonym of *Mycale lingua* (Bow.), q.v.: LUNDBECK (17) p. 34.
- Esperellinae*, defined: DENDY (8) p. 159.
- Esperiopsis* Carter, diagnosis, characteristics, and list of species: LUNDBECK (17) pp. 7-9; *E.*, discussed: THIELE (36) p. 440.—*E. edwardii* (Bow.), described: THIELE (36) pp. 441, 442.—*E. flagellum*, n. sp., Ingolf, 316 fathoms, pp. 20-22, pl. ix, fig. 1, a-h; *E. forcipula*, n. sp., Davis Strait, 80-100 fathoms, pp. 17-20, pl. i, fig. 5, pl. viii, fig. 5, a-i; *E. modesta* Lambe, a synonym of *Mycale ovulum* (O. S.), q.v., p. 38;

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Euchalina Lend., defined, p. 27; *E. typica* Lend., described: DRAGNEWITSCH (9) p. 27.

Eurypon miniaceum, n. sp., Calbuco, 30 m.: THIELE (36) pp. 446, 447, fig. 64, a–f.

Euspongilla lacustris, see III, A, β.

Forcepia Carter, diagnosis, p. 198, characters of species, pp. 210, 211; *F. fabricans* (O. S.), diagnosis and description, includes *Forcipina bulbosa* Vosm., pp. 201–204, pl. xix, fig. 3, a–g; *F. forcipis* (Bow.), diagnosis and description, pp. 198–201, pl. xix, fig. 2, a–h; *F. grænländica* Frist., diagnosis and description, pp. 209, 210, pl. xx, fig. 3, a–e; *F. thielei*, n. sp., from south of Iceland, 350 and 480 fathoms, pp. 206–209, pl. vii, figgs. 1, 2, pl. xix, fig. 5, a–f; *F. topsentii*, n. sp., from between Jan Mayen and Iceland, 1010 and 1309 fathoms, pp. 204–206, pl. vii, fig. 3, pl. xix, fig. 4, a–g: LUNDBECK (17).

Forcipina bulbosa Vosmaer, a synonym of *Forcepia fabricans* (O. S.), q.v.: LUNDBECK (17) p. 204.

Gelliinae, subfamily of *Haploscleridae*, defined: DENDY (8) p. 136.

Gelliodes Ridley, defined: DENDY (8) p. 137; DRAGNEWITSCH (9) p. 19.—*G. carinosa* Dendy, described, p. 137, pl. vii, fig. 5; *G. incrustans*, n. sp., Gulf of Manaar, pp. 137, 138, pl. ix, fig. 6; *G. petrosioides*, n. sp. and var. *fibrosa*, n. var., West Coast of Ceylon, deep water, pp. 138, 139, pl. ix, fig. 3: DENDY (8).—*G. spinosella* Thiele, described: DRAGNEWITSCH (9) p. 19.

Gellius Gray, defined: DENDY (8) p. 136; DRAGNEWITSCH (9) p. 17.—*G. angulatus* (Bow.), var. *canaliculata*, n. var., West Coast of Ceylon, pp. 136, 137, pl. ix, fig. 7; *G. fibulatus* (O. S.), described, p. 36: DENDY (8); DRAGNEWITSCH (9) pp. 18, 19.

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Haploscleridae, defined and characterized: DENDY (8) pp. 135, 136.

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Heteroxyinae, n. subfam., defined, for the genera *Heteroxya* and *Acanthoxifer*: DENDY (8) p. 156.

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Histoderma Carter, defined, p. 166; *H. vesiculosum*, n. sp., Gulf of Manaar, deep water, pp. 166–168, pl. xi, figgs. 8, 9: DENDY (8).

Homaeodictya Ehlers, diagnosis, characters, and list of species, pp. 117, 118; *H. flabelliformis* (Hans.), diagnosis and description, includes *Desmacidon clavellata* Arnesen, pp. 118–121, pl. iv, fig. 2, 3, pl. xiii,

- fig. 5, a-e; *H. palmata* (Johnst.), synonymy, diagnosis, and description, includes *Pachychalina compressa* O. S., pp. 121-125, pl. xiii, fig. 6, a-c; LUNDBECK (17).
- Hymeniacidon* Bow., defined, includes *Stylorella* Lend.: DENDY (8) pp. 185, 186.—*H. Bow.*, discussed, referred to Clavulida: THIELE (36) p. 421.—*H. fernandezii*, n. sp., Juan Fernandez: THIELE (36) pp. 422, 423.—*H. petrosoides*, n. sp., Ceylon Seas: DENDY (8) p. 186, pl. xii, fig. 4.—*H. rubiginosa*, n. sp., Iquique: THIELE (36) pp. 421, 422, fig. 44.
- Iophon* Gray, diagnosis and characters of species: LUNDBECK (17) pp. 173-175.—*I.*, discussed: THIELE (36) p. 444.—*I. chelifer* R. & D., described: THIELE (36) pp. 445, 446, fig. 63, a-d.—*I. dubius* (Hans.), diagnosis and description, includes *Esperia pattersoni* Frist. nec Bow.; pp. 180-183, pl. vi, figg. 2-5, pl. xvii, fig. 4, a-e; *I. frigidus*, n. sp. from East Greenland, 140 fathoms, and Kara Sea, 73 fathoms, includes *Esperella picea* Levinsen, pp. 183-185, pl. xvii, fig. 5, a-f; LUNDBECK (17).—*I. pattersoni* (Bow.), described; THIELE (36) p. 445.—*I. piccus* (Vosm.), diagnosis and description, includes *Esperia nigricans* Frist. nec Bow.: LUNDBECK (17) pp. 175-180, pl. vi, figg. 1, 2, pl. xvii, fig. 3, a, b.
- Iotrochota* Ridley, defined: DENDY (8) p. 164.—*I.*, diagnosis, p. 185, and characters of species, pp. 196-198: LUNDBECK (17).—*I. abyssi* (Cart.), diagnosis and description, pp. 188, 189, pl. xviii, fig. 3, a-d; *I. affinis*, n. sp. from East Coast of Greenland, pp. 194, 195, pl. xviii, fig. 8, a-e: LUNDBECK (17).—*I. baculifera* Ridley, described: DENDY (8) p. 165.—*I. dubia*, n. sp. from Denmark Strait, 767 fathoms, pp. 189, 190, pl. xviii, fig. 4, a-f; *I. intermedia*, n. sp. from between Iceland and the Faroes, 115 fathoms, pp. 190, 191, pl. xviii, fig. 5, a-d; *I. oxeata*, n. sp. from Denmark Strait and east of the Faroes, pp. 186-188, pl. vi, fig. 6, pl. xviii, fig. 2, a-f; *I. polydentata*, n. sp. from the Faroes and north of Iceland, pp. 192-194, pl. vi, fig. 7, pl. xviii, fig. 7, a-e: LUNDBECK (17).—*I. purpurea* (Bow.), described: DENDY (8) p. 164.—*I. rotulancora*, n. sp. from east coast of Greenland, 94 fathoms, pp. 191, 192, pl. xviii, fig. 6, a-g; *I. spinosa*, n. sp. from 69° 31' N. Lat., 7° 06' W. Long. 1309 fathoms, pp. 195, 196, pl. vi, fig. 8, pl. xix, fig. 1, a-e; *I. varidens*, n. sp. from Denmark Strait and south of the Faroes, pp. 185, 186, pl. xviii, fig. 1, a-e; LUNDBECK (17).
- Isodictya clarkei* Bow. and *I. lobata* Bow., synonyms of *Mycale ovulum* (O. S.), q.v.: LUNDBECK (17) p. 38.
- Leucophleæus* Carter, defined and discussed: DENDY (8) pp. 196, 197.—*L. fetidus* (Dendy), described: DENDY (8) p. 197.
- Lissodendoryx* Tops., defined: BAER (1) p. 22.—*L.*, diagnosis and characters of species: LUNDBECK (17) pp. 153, 154.—*L. complicata* (Hans.), diagnosis and description, includes *Myxilla grisea* Hans. and *Clathria corallorhizoides* Frist., pp. 166-169, pl. v, fig. 11, pl. xvi, 4, a-g; *L. diversichela*, n. sp. from Denmark Strait and West Coast of Norway, 170-788 fathoms, pp. 160-162, pl. v, fig. 9, pl. xvi, fig. 2, a-h; *L. fragilis* (Frist.), diagnosis and description, pp. 158-160, pl. v, figg. 7, 8, pl. xvii, fig. 1, a-g; *L. indistincta* (Frist.), diagnosis and description, pp. 162-165, pl. v, fig. 10, pl. xvi, fig. 3, a-h; *L. lobosa*, n. sp. from Denmark Strait and Davis Strait, 393 and 788 fathoms, pp. 154-156, pl. v, fig. 5, pl. xv, fig. 4, a-e; LUNDBECK (17).—*L. monticularis*, n. sp., Zanzibar: BAER (1) pp. 22, 23, pl. ii, fig. 6, pl. v, figg. 9-14.—*L. sophia* (Frist.), diagnosis and description, pp. 156-158, pl. v, fig. 6, pl. xv, fig. 5; *L. stipitata*, n. sp., off Iceland, 275-975 fathoms, pp. 170-173, pl. v, fig. 13, pl. xvii, fig. 2, a-e; *L. vicina*, n. sp. from Denmark Strait, 1566 fathoms, pp. 169, 170, pl. v, fig. 12, pl. xvii, fig. 1, a-f; LUNDBECK (17).
- Lycopodina*, n. subg. of *Asbestopluma*: LUNDBECK (17) p. 58.
- Melonanchora* Carter, diagnosis, p. 211; *M. elliptica* Carter, diagnosis and

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Microciona discreta, n. sp., Calbuco: THIELE (36) pp. 447–449, fig. 65, a–e. *Mycale* Gray, defined: BAER (1) p. 20.—*M.*, for *Esperella* Vosm., diagnosis and characters: LUNDBECK (17) pp. 23, 24.—*M. imperfecta*, n. sp., Zanzibar: BAER (1) p. 20, pl. ii, fig. 5, pl. v, figg. 3–8.—*M. intermedia* (O. S.), remarks on, p. 43; *M. lingua* (Bow.), diagnosis and description, includes *Esperella vosmaeri* Levinson, pp. 29–34, pl. ix, fig. 6, a–f, and text-fig. 1: LUNDBECK (17).—*M. magellanica* (Ridley), described: THIELE (36) pp. 442, 443.—*M.* sp., described: THIELE (36) p. 443, fig. 61, a–d.—*M. titubans* (O. S.), diagnosis and description, pp. 41–43, pl. x, fig. 3, a–h; *M. thaumatochela*, n. sp. for *Esperella intermedia* Vanhoffen (non Schmidt), Holstensborg, 30 fathoms, East Greenland 9–11 fathoms, and West Greenland, pp. 39–41, pl. x, fig. 2, a–g; *M. ovulum* (O. S.), diagnosis and description, includes *Esperia lanugo* O. S. and *Esperia stolonifera* Merejkowsky, probably also *Iodictya lobata* Bow., *I. clarkei* Bow., and *Esperiopsis modesta* Lambe, pp. 34–39, pl. i, figg. 6–8, pl. x, fig. 1, a–e; *M. placoides* (Cart.), diagnosis and description, pp. 24–29, pl. ix, fig. 5, a–l: LUNDBECK (17).

Mycalea for *Esperellinae*: LUNDBECK (17) p. 7.

Myxilla O. S., defined and characterised: DENDY (8) p. 168: LUNDBECK (17) pp. 131, 132: SVARCHEVSKI (35) p. 29.—*M. arenaria* n. sp., Gulf of Manaar and pearl banks off Aripu: DENDY (8) p. 169.—*M. brunnea* Hans., diagnosis and description: LUNDBECK (17) pp. 144–147, pl. iv, fig. 11, pl. xiv, fig. 6, a–h.—*M. chilensis* n. sp., Calbuco: THIELE (36) pp. 443, 444, figg. 22, 62, a–c.—*M. diversicolorata*, n. sp., from Denmark Strait, 170–310 fathoms, pp. 150, 151, pl. v, fig. 3, pl. xv, fig. 2, a–i; *M. fimbriata* (Bow.), diagnosis and description, pp. 141–144, pl. iv, figg. 9, 10, pl. xiv, fig. 5, a–i; *M. grisea* Hans., a synonym of *Lissodendoryx complicata* (Hans.), q. v., p. 166; *M. incrassata* (Johnst.), diagnosis, synonymy, and description, pp. 132–138, pl. iv, figg. 6, 7, pl. xiv, fig. 3, a–h; *M. pedunculata*, n. sp., from south of Jan Mayen, 262 fathoms, and between Iceland and the Faroes, 371 fathoms, pp. 148–150, pl. v, fig. 2, pl. xv, fig. 1, a–d; *M. perspicinosa*, n. sp., from Faskrudsfjord, Iceland, 20–50 fathoms, and Jan Mayen, 50–60 fathoms, pp. 147, 148, pl. v, fig. 1, pl. xiv, fig. 7, a–e; *M. pluridentata*, n. sp., from off Iceland, 20–44 fathoms, pp. 151–153, pl. v, fig. 4, pl. xv, fig. 3, a–e; *M. rosacea* (Liebk.), diagnosis, synonymy and description, includes *Dendoryx incrassata*, var. *viscosa* Topsent, pp. 138–140, pl. iv, fig. 8, pl. xiv, fig. 4, a–h: LUNDBECK (17).—*M. tenuissima*, n. sp., deep water off Galle: DENDY (8) pp. 169, 170, pl. xi, fig. 5.—*M. variisclera*, n. sp., Black Sea, pp. 30, 31 & 51, 52, pl. iv, fig. 10, pl. vi, fig. 2; *M. veneta* O. S., described, pp. 29, 30, pl. iv, fig. 9, pl. vi, fig. 1: SVARCHEVSKI (35).

Myxilea for *Dendorycine*, diagnosis and characters: LUNDBECK (17) pp. 125, 126.

Oceanapia, see *Phleodictyinae*.

Ophlitaspongia membranacea n. sp., Juan Fernandez: THIELE (36) pp. 450, 451, figg. 67, a–e, 105.

Pachychalina O. S., defined: BAER (1) p. 15: DENDY (8) p. 148: DRAGNEWITSCH (9) p. 25; SVARCHEVSKI (35) p. 23.—*P. brevispiculifera*, n. sp., Gulf of Manaar; DENDY (8), p. 149, pl. x, fig. 7.—*P. compressa* O. S. a synonym of *Homaeodictya palmata* (Johnst.), q. v.; LUNDBECK (17) p. 125.—*P. delicatula* Dendy: DENDY (8) p. 149.—*P. fibrosa* R. and D., described: DRAGNEWITSCH (9) p. 26.—*P. irregularis* (Tschernev.), described: SVARCHEVSKI (35) p. 23, pl. v, fig. 2; *P. magellanica*, n. sp., Straits of Magellan: THIELE (36) pp. 474, 475, figg. 13, 13a,

- 92.—*P. nigra*, n. sp., Zanzibar: BAER (1) p. 15, pl. ii, fig. 1, pl. iv, figg. 23, 24.—*P. reticulosa*, n. sp., Admiralty Sound and Punta Arenas: THIELE (36) p. 475, figg. 12, 93.—*P. spinilamella* Dendy, described: DENDY (8) p. 149, pl. vii, fig. 4.—*P. spinulosa* Lend., described; DRAGNEWITSCH (9) pp. 25, 26.—*P. subcylindrica*, n. sp., from N. of Negombo, 9 fathoms: DENDY (8) p. 148, pl. x, figg. 1, 2.—*P. tenera*, n. sp., Punta Arenas, p. 476, figg. 14, 94; *P. validissima*, n. sp., Calbuco, pp. 473, 474, figg. 16, 91: THIELE (36).
- Paramyxilla*, n. g. for *Halichondria infrequens* Carter: DENDY (8) p. 233, footnote.
- Paresperella*, n. g., type *Esperia serratohamata* Carter, p. 162; *P. bidentata*, n. sp., Gulf of Manaar, pp. 163, 164; *P. serratohamata* (Carter), described, pp. 162, 163, pl. xi, fig. 2: DENDY (8).
- Pellina* O. S., defined, pp. 8, 9; *P. semitubulosa* (O. S.), described, pp. 9, 10, pl. ii, fig. 4, pl. iii, fig. 4: SVARCHEVSKIÍ (35).
- Pellinella* n. g. for *P. conica*, n. sp., Admiralty Sound: THIELE (36) pp. 471, 472, figg. 90, 103.
- Petrosia* Vosmaer, defined: DENDY (8) p. 144: DRAGNEWITSCH (9) p. 21: SVARCHEVSKIÍ (35) pp. 10, 11.—*P. clavata* (B. Criv.), described, pp. 11, 12, pl. i, fig. 3, pl. iii, fig. 5; *P. coriacea*, n. sp., Black Sea, pp. 12, 13, pl. i, fig. 4, pl. iii, fig. 6: SVARCHEVSKIÍ (35).—*P. densissima*, n. sp., W. Coast of Ceylon, deep water, pp. 145, 146, pl. ix, fig. 9; *P. similis* R. & D., described, with varr. *delicatula* n. var. and *halichondroides*, n. var., p. 145: DENDY (8).—*P. similis*, var. *compacta* R. & D., described: DRAGNEWITSCH (9) pp. 21, 22.—*P. testudinaria* (Lam.); DENDY (8) p. 144, text-fig. 1.
- Phakellia* Bow., defined, p. 190; *P. ceylonensis*, n. sp., Gulf of Manaar, p. 192, pl. viii, fig. 3, pl. xiii, fig. 5; *P. crassitylifera*, n. sp., Ceylon seas, pp. 192, 193, pl. xiii, fig. 6; *P. donnani* Bow., described, pp. 190, 191, text-fig. 4; *P. symmetrica*, n. sp., Muttuvvaratu Paar, 8 fathoms, p. 191, pl. xiii, fig. 3: DENDY (8).
- Phleodictyina* defined to include *Phleodictyon*, *Oceanapia*, *Histoderma*, *Sideroderma*, and *Amphiastrella*: DENDY (8) p. 165.
- Phleodictyon* Carter, defined, p. 165; *P. fistulosum* (Bow.), described, pp. 165, 166: DENDY (8).
- Plicatella expansa*, n. sp., Iquique, 30 m.: THIELE (36) pp. 427, 428, figg. 21, 48, a-c.
- Plocamia* O. S., defined, p. 179; *P. manaurensis* (Carter), p. 179, pl. viii, fig. 1: DENDY (8).
- Pseudaxinella egregia* (Ridl.), described: THIELE (36) pp. 426, 427, fig. 47, a-c.
- Raspailia* Nardo, defined, and placed under *Ectyoninae*: DENDY (8) p. 172: history, extent and diagnosis of the genus, which is referred to the *Ectyoninae*, with key to the 21 species recognised, pp. 15, 21: diagnosis, synonymy and occurrence of the species, pp. 21-36: PICK (28): defined: SVARCHEVSKIÍ (35) pp. 32, 33.—*R. alces*, n. sp., Trieste, p. 11, pl. i, fig. 5, pl. ii, fig. 1, pl. iii, figg. 11, 12, pl. iv, figg. 14-16; *R. freyeri* O. S., described, pp. 14, 15, pl. i, fig. 6, pl. ii, fig. 4, pl. iii, figg. 6-8, pl. iv, figg. 7-9: PICK (28).—*R. fruticosa* Dendy, var. *tenuiramosa*, n. var.: DENDY (8) p. 172, pl. viii, fig. 5.—*R. hispida* (Mont.), described: PICK (28) pp. 12, 13.—*R. hornelli*, n. sp., Gulf of Manaar: DENDY (8) pp. 172-174, pl. xi, fig. 7.—*R. incrustans*, n. sp., Black Sea: SVARCHEVSKIÍ (35) pp. 33, 34, & 52, pl. v, fig. 6, pl. vii, fig. 1.—*R. ramosa* (Mont.), described, pp. 13, 14; *R. simplicior*, n. sp., Lesina, Adriatic, p. 10, pl. i, fig. 3, pl. iii, figg. 4, 5, pl. iv, figg. 4-6: PICK (8).—*R. thurstoni*: DENDY (8) p. 172.—*R. uncinata*, n. sp., Gulf of Muggia, Trieste, pp. 6, 7, pl. i, fig. 4, pl. iii, figg. 9, 10, pl. iv, figg. 10-13; *R. viminalis* O. S. described, pp. 7-9,

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Igernella, n. g., *Pleraplysillidae*, defined, p. exc, for *Darwinella joyeuxi* Topsent, described: TOPSENT (37) pp. clxxxvii–clxxxix, text-fig. 3.

Korotnewia Poléj., to be removed from the *Darwinellidae* and from the *Dendroceratida*, perhaps allied to *Psammaphysilla* Keller: TOPSENT (37) p. clxxiv.

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Oligoceras arenosa, n. sp., Juan Fernandez, pp. 479, 480; *O. paupera*, n. sp., Juan Fernandez, p. 481; *O. sororia*, n. sp., Juan Fernandez, 3 m., pp. 480, 481: THIELE (36).

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Psammiminidae, Haeckel, referred to the Protozoa; SCHULZE (31) pp. 4, 5.

Psammopemma, Marshall, defined; *P. crassum* (Carter), var. *clathrata*, n. var.: DENDY (8) p. 210.

Psammophyllum Haeckel, to be merged in the genus *Stannophyllum* and referred to the family *Stannomidae* (Protozoa): SCHULZE (31) p. 5.

Spongelia Nardo, defined: DENDY (8) p. 208: DRAGNEWITSCH (9) p. 19.—*S. chilensis*, n. sp., Calbuco, 19.–28 m.: THIELE (36) pp. 485, 486, fig. 20.—*S. elastica*, var. *lobosa* F. E. S., and *crassa*, n. var.: DENDY

(8) pp. 208, 209, pl. xiv, fig. 4—*S. elastica*, var. *massa* F. E. S., described: DRAGNEWITSCH (9) pp. 20, 21.—*S. fragilis* Mont., var. *ramosa* F. E. S., described: DENDY (8) p. 208.—*S. fragilis*, var. *tubulosa* F. E. S., described: DRAGNEWITSCH (9) p. 20.—*S. incrustata*, n. sp., Gulf of Manaar and W. coast of Ceylon: DENDY (8) pp. 209, 210.—*S. repens*, n. sp., Juan Fernandez: THIELE (36) pp. 486–488, fig. 111.

Spongeliidae, defined: DENDY (8) p. 207.

Spongia for *Euspongia*, p. 482; *S. cerebralis*, n. sp., Juan Fernandez, pp. 482, 483, figg. 19, 107; *S. magellanica*, n. sp., Punta Arenas and Calbuco, pp. 483, 484, figg. 18, 106: THIELE (36).

Spongidae, defined: DENDY (8) p. 210.

Stannomidae Haeckel, referred to the Protozoa: SCHULZE (31) pp. 4, 5.

(iv) MYXOSPONGIDA.

Definition of the Myxospongida, to include *Halisarca*, *Bajulus*, *Hexadella*, and *Oscarella*, their affinities discussed: DENDY (8) p. 60.
Halisara dujardini, var. *magellanica* Tops., described: THIELE (36) p. 490.

E. INCERTÆ SEDIS.

†*Achilleum rugosum*, var. *elliptica*: ZAHÁLKA (48) pp. 21, 168.

†*Amorphospongia rugosa* Röm.: ZAHÁLKA (48) pp. 159, 183.

Hexadella Topsent, defined, referred to *Myxospongida*: DENDY (8) p. 61: regarded as derived from *Aplysilla* by loss of skeleton, and referred to *Darwinellidae*: TOPSENT (37) pp. clxxiv and exc.—*H. indica* n. sp., Gulf of Manaar, 5 fathoms: DENDY (8) pp. 61–63, pl. i, figg. 1–3.

†*Leiofungia*, cf. *reticularis* (Münst.): BLASCHKE (3) p. 165.

†*Somphospongia favosiformis*, n. sp., Hamilton Group, Indiana, WHITFIELD (45) p. 300, pl. ix, figg. 1–9, Bull. Amer. Mus. xxi.

†*Sparsispongia* (?) sp.: BLASCHKE (3) p. 164.

†*Spongites saxonicus*: ZAHÁLKA (48) p. 56.

†*Strephochetus*, and *S. ocellatus*, described, p. 156, pls. lvi, lvii, lix; *S. brainerdi*, pl. lvi, fig. 2, pl. lvii, fig. 8, p. 156, *atratus*, pl. lvi, fig. 1, pl. lvii, fig. 9, p. 157, Beekmantown calciferous, Vermont, *richmondensis*, Kentucky and Indiana (MILLER) p. 157, *prunus*, Vermont, pl. lvi, fig. 5, pl. lvii, fig. 6, p. 160: SEELY, Rep. Vermont State Geol. iii, n. spp.

†*Vermispongia*, n. g., *V. hamiltonensis*, n. sp., figg. 1–5; *dactyliformis*, n. sp., fig. 6, pl. xi, Hamilton Group, Indiana, WHITFIELD (45) p. 298, Bull. Amer. Mus. xxi.

XVIII. PROTOZOA.

BY

H. M. WOODCOCK, D.Sc. (Lond.).

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INTRODUCTION.

THE *Protozoa* Record for 1905 is indeed a "record," containing no fewer than 522 Titles; this is an increase of quite 40 per cent. upon last year, and surpasses the previous best year (1902) by about 60 titles. And while of course, as is usual, a certain number belong actually to preceding years (chiefly to 1904), the Recorder does not find that the proportion of such in the present Record is so great as he anticipated would be the case a year ago.

Analysis of the Titles shews that this considerable increase is—as hitherto—largely due to the never-ceasing growth of the literature dealing with parasitic Protozoa and their relation to disease. In connection with this subject, the Recorder would like to remark that he is sure no other Recorder can have so much trouble and difficulty in deciding what papers to include and what to leave out, as falls to his lot. If he compares his list with the Titles given, say, in the Zool. Jahresbericht, he finds his own is much longer; if, on the other hand, he compares it with the literature-lists (relating solely to Protozoa and "Pseudo-Protozoa"), published in the Arch. Protistenkunde, he notes dozens of medico-biological papers which he has not included. To take one instance only: that of the "*Spirochæta*" of syphilis. Upon the answer to the question whether this organism is or is not a Protozoan, ought to depend the inclusion or non-inclusion of—well, of how many papers, the Recorder does not care to estimate! For this year, at all events, it has been considered best to leave them practically out of account, pending further discoveries; though the Recorder is by no means oblivious of KRZYSZTALOWICZ & SIEDLECKI's remarkable account (223), in which alleged trypaniform (Flagellate) phases of this parasite are described. Apart from this work, only SCHAUDINN & HOFFMANN's note regarding the discovery (406), and one or two notes (VUILLEMIN [498], SCHAUDINN [403 & 404]) bearing principally upon the nomenclature, are included.

So far as Morphology and Life-History are concerned, 1905 has proved a less exciting year than the previous one, though nevertheless fairly productive. Among the Gymnomyxa (or Sarcodina), an outstanding feature is the discovery by SCHULZE (431), as the result of his investigations upon certain families of Haeckel's deep-sea Ceratosa, that they are not Sponges but plasmodium-forming Protozoa, which he erects into a special group, the *Xenophyophora*, allied to the Rhizopoda and characterized by their utilisation of extrinsic foreign bodies (e.g. sponge spicules) to form a skeleton. A good deal of work has been done upon various species of *Amœba*, chiefly by NERESHEIMER (312), PENARD (335), SCHUBOTZ (427) and VAHLKAMPF (492). LISTER (267) continues his valuable research upon dimorphism in the Foraminifera, treating in this paper of the relation in size of the megalosphere to that of the microspheric and megalospheric tests in *Nannulites*; and DOUVILLE (110) offers an interesting note on the structure of *Orbitolina*. In the morphology of the arenaceous Foraminifera KEMNA has a wide field over which to range,—of which he avails himself (207); it may also be remarked that variety of topic is no obstacle to this versatile writer. An admirable example of the combination of a morphological with a biological study is furnished by HÄCKER'S work (169 & 170) on the comparative structure of the Trypylarian skeleton in relation to function and environmental conditions. Another important Radiolarian memoir is that of BRANDT (39) who has continued his study of the *Collidae*, supplying this time additional information regarding the structure and life-history of the *Thalassicolla*.

There are several interesting Sporozoan papers to record; though the Coccidia have been almost neglected. Led by his observation (43) of slight anisogamy in the conjugating elements of certain Monocystid Gregarines to reinvestigate the common *Monocystis* itself, BRASIL (44) finds that the sexual process in this genus is not, as hitherto thought, completely isogamous, but that distinctions between the male and female gametes really exist. On the other hand, SCHNITZLER (416) confirms the results obtained by previous workers, with regard to the complete isogamy in *Clepsydrina* (*Gregarina*) *ovata*, a Septate form. LÉGER (248) has discovered a remarkable Gregarine, having its cytoplasm metamerically segmented, which he terms *Tenioeycystis*. The investigation of this undoubtedly unicellular animal leads Léger to put forward the interesting suggestion that harmonic metamerism may be, in certain cases, the cause rather than the expression of repeated (asexual) multiplication (cf. *Anoplophrya*). The occurrence of Haemogregarines in Mammals, described by BALFOUR (7), CHRISTOPHERS (86), and LAVERAN (227), helps to break down still further the division formerly erected between the Hæmosporidia of warm- and of cold-blooded Vertebrates. Rogers' sensational observation of Flagellate phases in connection with the extra-corporeal development of *Piroplasma donovani* has been amply corroborated and extended by CHRISTOPHERS (85), LEISHMAN & STATHAM (253) and others; though, so far, no true trypaniform phases have been recognized. KOCH (214) gives an account of what he thinks are developmental stages of *Piroplasma canis* in the tick, but some of the weird appearances figured are not very convincing. Coming to the other sub-class of Sporozoa, the Neosporidia (or, as they are better termed, the Endospora), PEREZ's notes (341-344) on certain new *Glugeidae* are of considerable importance as regards the classification of the *Microsporidia*; and CAULLERY & MESNIL (72) publish a detailed account of their researches on the Actinomyxidian, *Sphaeractinomyxon*. HESSE (177, 179) has observed a new species of the uncommon form *Myxocystis*, which he finds to be a true Myxosporidian. Lastly, the number of Sporozoa incertæ sedis is increased by KRASSILSTSCHIK's account (220 & 221) of *Microklossia*, which seems to combine to a certain extent Ectosporan and Endosporan characters.

Of numerous papers dealing with the Trypanosomes, PROWAZEK's study (362) on the life-history of *Trypanosoma lewisi* is the most important from a protozoological standpoint; the author demonstrates that the life-cycle of this well-known Mammalian form agrees with that of the Trypanosomes of other Vertebrates so far as investigated up to the present, in possessing a true Invertebrate host (a louse, *Haematopinus*, in this case), in which the sexual conjugation is undergone. FOA (141) has continued his—the Recorder apologizes if he should write her—researches on unusual Flagellates and describes two entirely new types, one, *Calonympha*, being of extremely complicated structure. Miss ROBERTSON's very useful account (379) of the remarkable parasite, *Pseudospora volvocis*, illustrates well to what an extent form-polymorphism may be shewn during different periods in the life-history of a given Protozoan. A comprehensive description of the morphology and variation of the lorica in the Peridinida is given by ENTZ (122).

FAURÉ-FREMIET has again taken a prominent share in the work on the Ciliates. In his principal memoir (137) he combines much that he has previously written upon the cytology of the *Vorticellidæ*; and other information on the same subject is contained in (128, 131 & 132). In (138), it may be noted, this writer gives a full account of the minute cytoplasmic structure of the Rhizopod *Cochliopodium*. Further papers on the various organellæ of Infusoria are those of GONDER (160), RUSSO & DI MAURO (389 & 390), SCHUBERG (419), and THON (491).

Some interesting contributions on topics of a more general character

may be noticed. MESNIL (294) summarizes our present knowledge relating to the nuclear organelles known as chromidia, distinguishing between the different kinds; and SIEDLECKI (444) discusses at length the significance of the characteristic Sporozoan karyosome. SCHAUDINN (402) and STEMPFEL (472) compare the different modifications of the sexual process met with among the Protozoa, the former considering also the relation between the trophic (vegetative) and generative (sexual) nuclear constituents in the different cases. In connection with the physiology of conjugation, CALKINS (61), who is continuing his valuable research on recuperation upon new lines, expresses the quite unexpected idea that not both the ex-conjugants (in e.g., *Paramoecium*) are recuperated.

Another Transatlantic worker to whom Protozoan Physiology is greatly indebted is JENNINGS; in (197) he publishes one of the most thoughtful and philosophical contributions to the study of the behaviour of the lower organisms that has appeared for some time. The logical conclusion to which he finds himself bound to come as the result of his manifold experiments, is that "neither the usual movements, nor the reactions to different stimuli, of *Amœba* (as a type of living protoplasm) have as yet been resolved into known physical factors." It is very instructive to compare with this monograph RHUMBLER's efforts (376) to develop satisfactorily his mechanical theory of movement in *Amœba*, by surface-tension, an explanation which Jennings emphatically says will not suffice; and, in the end, Rhumbler himself briefly makes the significant admission, that a "Miniaturnurpsyche"—a form of energy of unknown character—may perhaps reside in the *Amœba*, though he deprecates the idea of its being necessarily metaphysical. Nevertheless, it would seem from this that Rhumbler, also, is really, at the end of his labours, no wiser as to the ultimate source of vital phenomena than he was at the beginning. In this section the Recorder has only to add that there is no end to investigations endeavouring to ascertain the effects of all the "taxies" and "tropisms" upon Protozoa; indeed, what the Zeitschrift allg. Physiol., for example, would do, were there no hapless *Paramoecia* and other Infusoria upon which to experiment, it is somewhat difficult to say.

The ranks of Protozoa which cause disease among higher animals are augmented this year by a new member of the Haplosporidia, *Rhinosporidium kinealyi*, described by MINCHIN & FANTHAM (298), this parasite producing tumours of the septum nasi of man. Much attention has been paid to the alleged Protozoan of variola and vaccinia, "Guarnieri's bodies" or *Cytoryctes*. BOSC (32) continues to publish lengthy descriptions, accompanied by unconvincing figures, of his "bryocytic" maladies ("maladies à Protozoaires"), treating this time of small-pox and "*Plasmodium* [sic] *variolæ*." SIEGEL (445) gives a long account of the parasite (as *Cytoryctes*), elaborately illustrated with photomicrographs, which differs considerably from Calkin's account (Zool. Rec. 1904[58]). Further, he considers (446) that scarlet-fever is caused by an allied species, and (447) syphilis by yet another (*C. luis*), this last conclusion being very different from that arrived at by Schaudinn & Hoffmann and their supporters (see above). On the other hand, PROWAZEK (364 & 365), RICCIOLI (377) and others strongly assail the parasitic nature of Guarnieri's bodies. Finally, PROWAZEK (363), after a study of *Plasmodiophora*, finds that no comparison can be made between this parasite and the cell-inclusions ("Plummer's bodies") in cancerous growths.

For various works on Geographical Distribution, the papers by BIGELOW, CASH & HOPKINSON, CONN, v. DADAY, EARLAND, HENDERSON, JENSEN, JØRGENSEN, LEMMERMANN, MASSART, MURRAY, NORDGAARD, PERNARD, SIDEBOTTOM & WEST should be consulted; on Geological Distribution, those by CHAPMAN, CHAPMAN & HOWCHIN, CHECCHIA-RISPOLI, COCCO, DOUVILLE, FORNASINI, GOUGH, HUCKE, PREVER, POPOFSKY, READE &

HOLLAND, SCHLUMBERGER, SCHUBERT, SILVESTRI, SQUINABOL, WOJOIK, WRIGHT and others.

The Systematic description of *Gymnomyxa* is a subject upon which, as may be supposed, PENARD has plenty to say ; in (334, 337 & 338) he adds to our knowledge of lacustrine Rhizopods, and in (336) decides that there is a true genus *Amœba*, well-characterized, if difficult to diagnose. CASH & HOPKINSON (63) publish the first volume of a complete enumeration, with descriptions and good illustrations, of British fresh-water Rhizopods and Heliozoa. Among Foraminiferan memoirs calling for remark, two (359 & 360) represent PREVER's further contributions to our knowledge of the *Nummulitidae*. With SILVESTRI, this author also considers (361) the constitution and relationships of the *Orbitolinae*. The last papers of SCHLUMBERGER—whose additions to the Foraminifera are tabulated by SILVESTRI (455) in his obituary notice—relate to the *Miliolidae* (411), and to certain new genera, *Choffatella* (409) and, with DOUVILLE, *Lituonella* (413). SILVESTRI (449) offers some critical observations on the genus *Baculogypsina* and the *Orbitoidæ*, on the debated form *Chapmaniella gassiniensis* (= *Dictyoconus aegyptiensis*) (451, 453, and, with PREVER, 361), and in (452) engages in a somewhat heated discussion with SCHUBERT (421), regarding the exact systematic value of two forms of *Cyclammina*. LEARDI in AIRAGHI (246) describes fully the genus *Rupertia* and its species, and CHECCHIA-RISPOLI (84) does the same for *Alveolina*. FORNASINI (145) reports on Adriatic *Textularidæ* and in (142, 143, 146 & 147) continues his useful occupation of "editing" d'Orbigny's species of Foraminifera and bringing his unpublished figures into the light of day. Among other papers notable from a Systematic standpoint are those of CHAPMAN & HOWCHIN (79), JENSEN (199), and SIDEBOTTOM (442 & 443).

As usual, the Radiolarian fauna grows apace. HÄCKER, in his valuable memoirs above referred to (169 & 170), diagnoses several new species of *Tripylaria* ; but it is to the untiring SQUINABOL (463), ably supported by JØRGENSEN (203 & 204), that the task of supplying names for new Radiolaria has chiefly fallen. The first of Jørgensen's papers, it may be mentioned, is an earlier one, which appears to have been overlooked. As the result of his researches on the colonial forms (*Sphaerozœa*), BRANDT (40) is now in a position to characterize and classify the constituent genera.

Fewer Systematic contributions to the remaining classes of Protozoa require mention. CRAWLEY (94) discusses the inter-relationships of the Sporozoa, and LAVERAN (240) reclassifies the "Hæmocytozoa," by the simple, though not necessarily the best, method of reducing the number and grade of forms regarded as distinct. The arrangement and classification of the Haplosporidia have been taken in hand with considerable success by CAULLERY & MESNIL (71), who have also observed certain new forms (67 & 68). Needless to say, many new Trypanosomes have been made known by different workers ; when, however, as in the case of NOVY & MACNEAL's different "types" (323), the diagnoses are largely based on "cultural" characters, they cannot be regarded with much confidence. The scanty number of Rhynchoflagellate genera has received two conspicuous additions in *Craspedotella*, described by KOFOID (215) and *Radiozoum*, by MINGAZZINI (299) ; and, among the Ciliates, KOFOID's account (216) of new Tintinnids should be noted.

I.—TITLES.*

1. [ANON.] Section "Protozoa" in Intern. Cat. Scient. Lit. (ii), 1905, pp. 67-105.
2. [—. (EDITORIAL).] Dr Schaudinh's work on blood-parasites. Brit. Med. J. 1905, i, pp. 442-444, 5 text-figg. [Cf. McWEENEY (290).]
3. ABRIC, P. Automatisme et liberté chez les êtres unicellulaires. C.R. Soc. Biol. lix, pp. 181-183. [See II. B. 2.]
4. ALZONA, C. Brevi notizie sulle raccolte zoologiche nelle caverne. Boll. Naturalista xxv, pp. 1-3.
Occurrence of Protozoa in subterranean waters.
5. ARCICHOVSKIJ, V. Ueber das Zoopurpurin ein neues Pigment der Protozoa (*Blepharisma lateritium* [Ehrb.]). Arch. Protistenk. vi, pp. 227-229, 1 text-fig.
6. BALDRY, F. S. W. Dourine. J. comp. Pathol. xviii, pp. 1-22, 9 text-figg.
7. BALFOUR, A. A Hæmogregarine of Mammals—*H. jaculi*, *H. balfouri*, Laveran. J. trop. Medicine viii, pp. 241-244, 8 figg.
8. —. Trypanosomiasis in the Anglo-Egyptian Sudan. Edinb. Med. Journal 1905, pp. 202-212, pl. 5.
9. BANCROFT, F. W. On the validity of Pflüger's law for the galvanotropic reactions of *Paramaecium*. Univ. Calif. publ. Physiol. ii, pp. 193-215, 9 text-figg.
10. —. Ueber die Gültigkeit des Pflügerischen Gesetzes für die galvanotropischen Reaktionen von *Paramaecium*. Arch. ges. Physiol. cvii, pp. 535-556, 9 figg. [Translation of (9).]
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12. —. Die Kohlensäureproduktion von *Paramaecium aurelia*. T. c. pp. 66-72.
13. —. Der Einfluss der Concentration auf die Chemotaxis. T. c. pp. 73-94, 1 text-fig., 5 tables.
14. BASSANI, F. La Ittiofauna delle argille marnose plioceniche di Taranto e di Nardò (Terra d'Otranto). Atti Acc. Napoli xii, No. 3, 59 pp., 3 pls.
15. BASTIAN, H. C. On the occurrence of certain ciliated Infusoria within the eggs of a Rotifer, considered from the point of view of heterogenesis. P. R. Soc. London, pp. 385-392, pl. 7.
16. —. The heterogenetic origin of Fungus-germs and Monads. Ann. Nat. Hist. xv, pp. 210-217, pls. 14 & 15.
17. *BATTAGLIA, M. Alcune ricerche sopra due Tripanosomi (*Trypanosoma vespertilionis*—*Trypanosoma lewisi*). Ann. med. Nav. Roma 10, ii, pp. 517-523, 4 text-figg.
18. BAUDOUIN, M. Les parasites de la sardine. Rev. Scient. (5) iii, pp. 715-722, text-figg. 32-35.
Includes short notice of *Coccidium sardinae*.

* An asterisk prefixed to a quotation indicates that the Recorder has not seen the Journal or Work referred to.

19. BENHAM, W. B. Note on the occurrence of the Foraminiferan genus *Ramulina* in the New Zealand waters. Tr. N. Zealand Inst. xxxvii, p. 300.
20. BENTLEY, C. A. Preliminary note upon a Leucocytozoan of the dog. Brit. Med. J. 1905, i, p. 988, 2 text-figg.
21. —. A new Leucocytozoan of the dog. T. c. p. 1078. [See II. G. 3.]
22. BETTENCOURT, — & FRANÇA, C. Sur un Trypanosome du blaireau (*Meles taxus* Schreib.). C.R. Soc. Biol. lix, pp. 305 & 306.
23. — & —. Sur un Trypanosome de la chauve-souris. T. c. pp. 306 & 307.
24. BIGELOW, H. B. The shoal-water deposits of the Bermuda Banks. P. Amer. Ac. xl, pp. 559-592.
25. BILLETT, A. Sur une forme particulière de l'Hématozoaire du paludisme décrite par MM. Ed. et Et. Sergeant. C.R. Soc. Biol. lviii, pp. 720-722. [See II. E.]
26. BLANCHARD, R. La médecine coloniale. Arch. parasit. ix, pp. 95-121. On the rôle of Protozoa in colonial diseases.
27. —. Zoologie et médecine. T. c. pp. 129-144. On the rôle of Hæmatozoa in medical parasitology.
28. —. Substances toxiques produites par les parasites animaux. Op. cit. x, pp. 84-104. [See II. B. 1.]
29. BLANCHARD, L. F. Deux Grégaries nouvelles parasites de Ténébrionides des maures. C.R. Ass. Franc. xxxiii (session 1904), pp. 923-928.
30. *BLUM, L. Untersuchungen über das Vorkommen parasitärer Organismen in Geschwülsten. Arch. path. Anat. clxxix, pp. 475-485.
31. BOSC, F. J. La maladie du jeune chien est une maladie bryocytique (à Protozoaires). C.R. Soc. Biol. lviii, pp. 534-536.
32. —. Les maladies bryocytiques (maladies à Protozoaires). 3^{me} Mémoire. La variole et son parasite (*Plasmodium variolæ*). Centrbl. Bakter. (1) xxxix, Orig., pp. 36-45, 129-141, 247-263, 389-398, 594-602, 2 pls., 12 figg.
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34. —. Les Infusoires parasites. T. c. pp. 118-126, 163-173, 211-214, pls. 10 & 14. General account.
35. —. La peau des *Coleps*. T. c. pp. 271-275.
36. BOUSSAC, J. Sur le parallélisme des couches éocènes supérieures de Biarritz et du Vicentin. C.R. Ac. Sci. cxli, pp. 740-742.
37. BOWHILL, T. Equine piroplasmosis or "biliary fever." J. Hygiene v, pp. 7-17, pls. 1-3.
38. BOYCE, R. The year's progress in tropical Medicine. Brit. Med. J. 1905, ii, pp. 1258 & 1259. [Refers to the discovery of Leucocytozoa and Hæmogregarines in Mammals.]
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40. [BRANDT, K.] Zur Systematik der Koloniebildenden Radiolarien. Zool. Jahrb. Suppl. viii, pp. 311-352, pls. 9 & 10.
41. BRASIL, L. La résorption phagocytaire des éléments reproducteurs dans les vésicules séminales du *Lumbricus herculeus* Sav. C.R. Ac. Sci. cxl, pp. 597-599. [See II. c. 2.]
42. —. La genèse des gamètes et l'anisogamie chez les *Monocystis* du *Lombric*. T. c. pp. 735 & 736. [For fuller account see (44).]
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44. —. Nouvelles recherches sur la reproduction des Gregarines monocystidées. Op. cit. (4) iv, pp. 69-99, pls. 9 & 10.
45. BRAUN, M. The animal parasites of man. A handbook for students and medical men. (3rd edit. enlarged. Translated by P. Falcke. Revised to date by L. Sambon & F. Theobald). London (Bale, Sons, and Danielson), pp. xix + 453, 290 figg. in text. [Protozoa, pp. 25-127, text-figg. 1-65.]
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47. BREHM, V. Zur Kenntniss der Microfauna des Franzensbader Torfmoordistriktes. Arch. Hydrobiol. i, pp. 211-228, 5 text-figg.
48. — & ZEDERBAUER, E. Das September-Plankton des Scutarisees. Verh. Ges. Wien lv, pp. 47-52, 3 text-figg.
49. — & —. Beiträge zur Planktonuntersuchung Alpiner Seen. T. c. pp. 222-240, 7 text-figg.
BREINL, A. [See THOMAS, H. W. & BREINL, A. (489).]
50. BRIVES, A. Sur les terrains eocènes dans le Maroc occidental. C.R. Ac. Sci. cxl, pp. 395-397.
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57. — & WURTZ. Note sur le traitement de la maladie du sommeil expérimentale par l'acide arsénieux et le trypanroth. T. c. pp. 61-63. (Remark by Laveran, p. 76.)
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- BUFFARD, M. [See SCHNEIDER, G. E. & BUFFARD, M. (414).]
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68. — & —. Sur des Haplosporidies parasites de poissons marins. *T. c.* pp. 640-642.
69. — & —. Phénomènes de sexualité dans le développement des Actinomyxides. *T. c.* pp. 889-891. [See (72).]
70. — & —. Phénomènes de sexualité dans le développement des Actinomyxides. *C.R. Ac. Sci. cxl*, pp. 1482-1484. [Identical with (69).]
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515. —. Die moderne Hydrobiologie und ihr Verhältniss zu Fischzucht und Fischerei. T. c. pp. 322-329, 352-365.
Importance of Protozoan plankton and Myxosporidia in relation to fisheries.
516. —. Original-Mikrophotogramme. Arch. Hydrobiol. i, pp. 234-246, 23 text-figg. [Excellent microphotographs (only) of *Ceratium hirundinella* (fig. 16), *Staurophtyra elegans* (fig. 15), and *Volvox minor* (fig. 17).]
517. —. Einige neue Planktonorganismen aus südschweizerischen und oberitalienischen Seebecken. Zool. Anz. xxviii, pp. 730-733.
ZEDERBAUER, E. [See BREHM, V. & ZEDERBAUER, E. (48 & 49).]
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521. —. Über das Winterplankton der Wolga bei Romanow-Borisoglebsk. T. c. pp. 344-346.
522. —. Ueber das Plankton des Saisan-Sees. T. c. pp. 477-482, 2 text-figg.

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Human piroplasmosis; relation of the parasites to the red blood-corpuscles, DONOVAN (105).—On naturally occurring piroplasmosis in monkeys (*Cercopithecus*), ROSS (386).—On the frequent presence of *Piroplasmata* in the blood of cattle in Ireland, and the occurrence of bovine piroplasmosis, METTAM (297).—Bacilliform piroplasmosis of cattle in Tunis, DUCLOUX (115).—Equine piroplasmosis, or "biliary fever," BOW-HILL (37).—Canine piroplasmosis; abundance, and relation to the blood-corpuscles of the parasites in different parts of the body, GRAHAM-SMITH (162).

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MANSON (298) puts forward the interesting hypothesis that the organisms of Kala-Azar and Oriental sore may be identical, but that in the latter case the virulence of the parasite has been in some way got rid of; in other words, that these two diseases bear to one another the same relation that small-pox (variola) and vaccinia do.

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Trypanosomosis:—

Trypanosomes and trypanosomoses ; general account, BRUMPT (55).—Trypanosomoses and Tsetse-flies in French Guinea, LAVERAN (230).—Tsetse-flies and the Trypanosomes of sleeping-sickness, BRUMPT (54).

Sleeping-sickness and animal trypanosomoses in Uganda, NABARRO & GREIG (310) and GREIG & GRAY (165).—Sleeping-sickness and the trypanosomoses produced in various animals by *T. gambiense*, *T. dimorphon*, *T. evansi*, and *T. equinum*, comparative account of ; pathological effects and treatment, THOMAS & BREINL (489).

Trypanosoma gambiense the probable cause of Congo sleeping-sickness, DUTTON, TODD & CHRISTY (118).—From experiments on rats with the Trypanosomes from cases of Gambia-fever and sleeping-sickness, PLIMMER (354) concludes that these two trypanosomoses, and the organisms causing them are to be considered as distinct.

Relations of the Trypanosomes to the brain and nervous system, in different trypanosomoses (sleeping-sickness, Surra, "Jinga" disease), MOTT (303).—Pathological-anatomical changes undergone by the parasites in the various organs and tissues, in experimental trypanosomosis (*T. brucei*), SAUERBECK (400).

Course of Mal de Caderas, Dourine, and Nagana as observed in white mice and rabbits artificially infected with the respective Trypanosomes of these diseases, HALBERSTAEDTER (171).

On the "unicité" of Dourine (caused by *T. equiperdum* = *T. rougeti*) in Europe and Algeria, SCHNEIDER & BUFFARD (414).—On Dourine, BALDREY (6).

Trypanosomosis : (a) of cattle in Egyptian Soudan, caused by a new form, *T. nanum*, apparently restricted to *Bovidae* ; and (b) of a mule from Itang on Abyssinian frontier (possibly *T. dimorphon* ?), LAVERAN (235).—Trypanosomosis of cattle (*T. nanum*) in Anglo-Egyptian Soudan, BALFOUR (8).—Account of a distinct trypanosomosis in Cameroun, caused by *T. vivax* n. sp. ; infection limited, apparently, to cattle, sheep and goats among domestic animals, ZIEMANN (518).

Occurrence of a trypanosomosis of horses, caused by *T. dimorphon*, in French Guinea (Upper Niger), CAZALBOU (74).—Existence of a trypanosomosis of horses, zebras, mules, etc., at Macina (French Soudan), known as "Sourmaya," probably the same as Mburi, id. (75).

Trypanosomosis of horses at Mécheria (Oran), Algeria, resembling Surra, and caused by a parasite very like *T. evansi*, ROGER & GREFFULHE (384).—A trypanosomosis of camels in North Africa, known as el Debab, closely allied if not identical with Surra and Mburi ; distinction of trypanosomoses conveyed by Tabanids from those conveyed by Tsetses, SERGENT (439).

Three varieties of Surra, perhaps caused by different races of the same species of parasite (*T. evansi*) ; Surra of India, S. of Mauritius, and Mburi, LAVERAN & MESNIL (243).—Identity of the Trypanosomes of Surra and Mburi (*T. evansi*) confirmed, LAVERAN (229).

Susceptibility of jerboas (*Jaculus*) to the Trypanosome of Surra and to *T. gambiense*, LAVERAN (239).—Marked susceptibility of the cat to Surra ; fatal termination, PANISSET (330).—Susceptibility of bats (*Pteropus medius*) to the Surra Trypanosome, *T. evansi*, LAVERAN (234).—Marked resistance offered by a bat (*Vesperilio kuhlii*) to Sergent's Trypanosome of dromadaries (Zool. Rec. 1904, Nos. 311 & 312), NICOLLE & COMTE (316).

Frequency of *T. lewisi* in black rats (*Mus rattus*) ; rarity in sewer rats (*M. decumanus*) ; resistance of sewer and white rats to natural infection ; SABRAZÉS & MURATET (395).

Inoculation of various birds with *T. paddae*, THIROUX (485).

Different behaviour (as regards immobilization and agglomeration) of various Mammalian and Avian sera on *Trypanosoma paddæ*, LEVADITI & SEVIN (261).

Cytolytic action of serum of white rat on *T. paddæ*, SEVIN (441).—Natural immunity of certain animals (guinea-pig, mouse) to *T. paddæ* is not due to the active, cytolytic properties of their sera, but to rapid phagocytic digestion : of others (white rats) due in part to both causes, LEVADITI & SEVIN (262).

Protozoa in reference to other diseases:—

Intestinal Flagellates (*Leptomonas*, *Trichomonas*) and diarrhoea, CASTELLANI (65).

Occurrence of "*Spirochæta*" *pallida* n. sp. (later *Treponema* n. g. *pallidum*) in true syphilitic lesions and products, probably the cause of this disease, SCHAUDINN & HOFFMANN (406).—THESING (481) apparently doubts not only whether "*Spirochæta*" *pallida* is a Protozoan, but also whether it is etiologically connected with syphilis.

SIEGEL (445) considers that "Guarnieri's bodies," as they occur in small-pox and vaccinia (*Cytoryctes variolaæ* and *C. vaccinæ*) are the cause of those diseases ; he gives a quite different account of them, however, from that of Calkins (Zool. Rec. 1904, No. 58). Further, he has found similar parasites in foot and mouth disease (*C. aphtharum* n. sp.), scarlet-fever, *C. scarlatinae* n. sp. (446), and also in syphilis, *C. luis* n. sp. (447), this last being very different from those obtained by other workers.—"Bryocytic" maladies ; small-pox and "*Plasmodium*" *variolaæ*, BOSC (32).

PROWAZEK, on the other hand (364 & 365), concludes that Guarnieri's bodies (*Cytoryctes*), as seen in vaccinia, are certainly not parasites.—RICCIOLI (377) also comes to the conclusion that the bodies taken by Siegel to represent Protozoa, and the cause of vaccinia (Guarnieri's corpuscles), are really artificial products ; R. regards other bodies, found in the kidneys of infected rabbits, as Protozoa.

Bodies found in, and cultivated from carcinomatous tumours, which are thought to be *Plasmodiophora*, and dignified with a new specific name, *P. carcinomatis*, ROBERTSON & WADE (381).—No comparison can be rightly made between the cell-inclusions of cancerous growths ("Plimmer's bodies," etc.) and the Myxameban parasites, *Plasmodiophora brassicae*, PROWAZEK (363).—The cells of carcinoma are to be regarded as parasites "of the lowest animal nature," BUTLIN (59).

Occurrence of sickle-shaped formations, thought to be parasitic ("Hæmamæba" *leucæmia magna*), in myelæmia and leucæmia, LÖWIT (271).

The organisms known as *Coccidioides immitis* and *C. pyogenes*, causing a disease of man in America, and thought by Rixford and Gilchrist to be a kind of Sporozoan, are really pathogenic moulds (Fungi), OPHÜLS (327).

D. REPRODUCTION.

1. Asexual: fission, schizogony, etc.

Varieties of division of protoplasm in a multinucleate condition (i.e. with regard to the concurrent division of cytoplasm and nuclei), exemplified by *Amæba proteus*, STOIC (475).

Vegetative multiplication, by plasmotomy, of *Mycetosporidium* n. g., LÉGER & HESSE (251).

Schizogony in *Coccidium subepithelialis* ; 8-11 merozoites, MOROFF & FIEBIGER (302).

Schizogony described in a new Mammalian Hæmogregarine (*H. balfouri*), BALFOUR (7).—Endogenous multiplication of *H. balfouri* (really schizogony ?)

free, but enclosed in a cyst, LAVERAN (227).—Schizogony in *Lankesterella tritonis* n. sp., described, FANTHAM (126).

Multiplication of *Piroplasma canis*, NUTTALL & GRAHAM-SMITH (325).—Peculiar unequal fission (successive) of *Piroplasma donovani* in cultures, thin, spirillar forms being cut off from the parent parasite, LEISHMAN & STATHAM (253).

Schizogony of various types in *Thelohania moenadis*, described, PEREZ (344).

Asexual multiplication of *Blastulidium* by plasmotomy, a budding-like process, recalling that of yeasts, PEREZ (340).

Schizogonous multiplication of the different types of element in *Microklossia*, KRASSILSTCHIK (220 & 221).

Mode of multiplication of *Trypanosoma gambiense* in the Tsetse-fly (*Gl. palpalis*), GRAY & TULLOCH (164).—Multiple division of Avian Trypanosomes, by rosette-formation, NOVY & MACNEAL (323).

Multiplication of *Dunaliella salina* n. sp., HAMBURGER (172).

The occurrence of longitudinal division in *Opalina ranarum* confirmed, SCHOUTEDEN (418).

2. Sexual: gametes and conjugation.

On the various modes of sexual conjugation in Protozoa ; the relation between conjugation and trophic (vegetative) life, STEMPPELL (472).

Sexual conjugation (karyogamy) in *Plasmodiophora*, autogamous in character, PROWAZEK (363).

The gametes in *Clepsydrina ovata* are perfectly similar and equal ; hence conjugation is isogamous, SCHNITZLER (416).—Formation of sporoblasts (gametes) in the Monocystid Gregarines *Gonospora* and *Urospora* ; distinctions between the male and female elements, and hence anisogamous conjugation, BRASIL (43) : also in the case of *Monocystis* itself, id. (42 & 44).

Gametocyte- and gamete-formation in *Coccidium subepithelialis*, MOROFF & FIEBIGER (302).

Sexual forms (micro- and mega-gametocytes and micro-gametes) of a new "Hæmameba," described, VASSAL (495).

Sexual conjugation (feebley anisogamous) in *Sphaeractinomyxon*, described, CAULLERY & MESNIL (72).

Gametogony and conjugation in *Microklossia*, KRASSILSTCHIK (220).

Conjugation of gametes (practically equal) in *Dunaliella* n. g., TEODORESCO (478).—Formation and behaviour of microzooids (probably isogametes) in *Hæmatococcus plurialis*, PEEBLES (333).—Gametogenesis and conjugation (of flagellate gametes) in *Pseudospora volvocis*, described, ROBERTSON (379).

Sexual forms and conjugation (in the Invertebrate host) of *Trypanosoma lewisi*, described, PROWAZEK (362).—Sexual forms of *Trypanosoma brucei* and *T. gambiense*, in the Tsetse-flies (*Glossinæ*), characterized, KOCH (213).

Occurrence of micro- and mega-gametes, their formation and conjugation, described in *Treponema (Spirochaeta) pallidum* (= *Trypanosoma luis*), KRZYSZTALOWICZ & SIEDLECKI (223).

Conjugation in *Cryptochilum echini*, described, RUSSO & DI MAURO (391).

3. Nuclear behaviour and changes during division : directive centres, etc.

On the behaviour of the nuclear constituents in the conjugation of Protozoa ; elaboration of a scheme founded on "Trypanosoma" nootuae ; a universal "nuclear duality" to be recognized among Protozoa, of somatic (trophic) and sexual (generative) constituents, SCHAUDINN (402).

Nuclear division (mitotic) of the vegetative and of the generative nuclei of *Plasmodiophora*, PROWAZEK (363).

Nuclear division in *Amœba limax*, described and compared with other forms of mitosis, VAHLKAMPF (492).—Behaviour of the nuclear material, chromidial network, etc., during the process of encystment in *Arcella*; the formation of secondary nuclei, MARTINI (282).

Nuclear multiplication in the formation of the isospores and anisospores of *Thalassicolla*, BRANDT (39).

Nuclear changes and multiplication (mitotic) in sporoblast-formation in *Clepsydrina*; nuclear purification (maturation) of the sporoblasts themselves, prior to conjugation, SCHNITZLER (416).—Nuclear changes and divisions in the formation of sexual elements in *Gonospora* and *Urospora*, BRASIL (43); ditto in *Monocystis*, id. (44).

Nuclear changes and processes during multiplication and different phases in the life-cycle of *Trypanosoma lewisi* and *T. brucei*, described, PROWAZEK (362).

Fragmentation of the meganucleus in *Cryptochilum*, described, RUSSO & DI MAURO (389).—Behaviour of the meganuclei while uniting, during conjugation in *Glossatella*, FAURÉ-FREMIET (132).—Nuclear division in *Didinium*, affords perhaps “the earliest indication of a mitosis,” THON (491).—Nuclear reduction and karyogamy in the conjugation of various Infusoria (*Didinium*, *Dileptus*), PRANDTL (358).

E. DEVELOPMENT ; LIFE-CYCLE.

Sporangium and spore-formation in *Mycetosporidium* n. g., LÉGER & HESSE (261).

Possible occurrence of flagellate zoospores (comparable with isogametes of Foraminifera) in *Stannoma*, SCHULZE (431).

Cyst-formation and nuclear multiplication in *Amœba blattæ*, SCHUBOTZ (427).—Formation of resting-cysts (hypnocytes) in *A. limax*, VAHLKAMPF (492).—Encystment-process in *Arcella* described fully, MARTINI (282).

Mode of development of the chambered shell in different *Lagenidæ* comparatively studied, CUSHMAN (96).

Development of the isospores and anisospores in *Thalassicolla*, BRANDT (39).

Growth and development of the trophozoites of *Anchorina* from early stages; apparent absence of further developmental phases (multiplication) in digestive tube of *Capitella*, CECCONI (76).—“Cœlomic” cysts and sporozoites [really merozoites produced by schizogony] of *Aggregata inachi* n. sp., described, SMITH (462).—Cyst-, spore- and sporocyst-formation in *Clepsydrina*; occurrence of micro- and mega-spores, SCHNITZLER (416).

Sporulation in *Coccidium subepithelialis*, MOROFF & FIEBIGER (302).

Good photomicrographs of the sporozoites of malarial parasites, HILL & HAYDON (181), pl. 15.—Effects of different temperatures on the sporogony (sporoblast- and sporozoite-formation) of malarial parasites (*Laverania malariae* and *Plasmodium vivax*), JANCSÓ (193).

On a gregariniform (crescentic) phase in the malarial parasite, recalling a Hæmogregarine, BRILET (25).

Alleged stages of development of a new Mammalian Hæmogregarine (*H. gerbilli*) in a louse (*Hæmatopinus* sp.); occurrence of cysts with zygotes [spores ?], containing sporozoites, which are liberated and become active on transferring to blood, CHRISTOPHERS (86).

Cysts and sporozoites of a Protozoan, probably phases of a Hæmogregarine parasitic in *Testudo*, described in ticks (*Hyalomma*) taken from that tortoise, LAVERAN & NÈGRE (244).

Curious morphological forms of *Piroplasma bigeminum*, in the tick, according to KOCH (214); also forms of *Trypanosoma* (presumably

brucii) in Tsetse-flies (*Gl. fusca*).—Development of Flagellate forms of Leishman-Donovan parasites (*Piroplasma donovani*) in cultures (citrated blood); formation of a vacuole, from which the flagellum appears to originate, CHRISTOPHERS (85) and LEISHMAN & STATHAM (253).

Cysts and spores of *Myxobolus neurobus* and *Henneguya nüsslini* n.spp., described, SCHUBERG & SCHRÖDER (420).—Characteristic Microsporidian spores of *Myxocystis mrazekii* n. sp., HESSE (179).—*Nosema pulvis*, spores of, and condition of diffuse infiltration in, PEREZ (344).—Sporogony in *Theleohania manadis*, PEREZ (344).

Development and sporulation of *Sphaeractinomyxon* described; construction of the life-cycle, CAULLERY & MESNIL (72).

Sporulation and development of various Haplosporidia and allied forms described, CAULLERY & MESNIL (71).—Sporulation and spores of *Caelosporidium blattellae* described, CRAWLEY (93).—Pansporoblast- and spore-formation in the cysts of *Rhinosporidium* described, MINCHIN & FANTHAM (299).

Curious mode of sporogony in *Microklossia*; two successive sporulation-periods, the first apparently endosporous in character, and serving for autoinfection, the second only giving rise to definite spores and sporozoites, KRASSILSTSCHEK (221).

Zoospores of *Dunaliella* n. g., and their division, described, TEODORESCO (478).—Phases in the life-history of *Pseudospora volvocis*; amoeboid, flagellate, and radial forms, described, ROBERTSON (379).

Development and life-history of *Trypanosoma lewisi* fully described; important phases undergone in an Invertebrate host (*Hæmatopinus spinulosus*), PROWAZEK (362).—Evolutive phases of *Trypanoplasma* and *Trypanosoma* spp. in leeches (*Hemiclepsis*) described, BRUMPT (55).—According to THIROUX (483), there is no ontogenetic connection between *Trypanosoma paddae* and *Halteridium danilewskyi*, both parasites of *Padda*.

Description of trypaniform phases in the life-cycle of *Treponema (Spirocheta) pallidum* (= *Trypanosoma luis*), KRZYSZTALOWICZ & SIEDLECKI (223).

Various developmental phases in "*Trypanosoma*" *balbianii* described, PERRIN (345). [The Rec. does not place much reliance on many of these phases, which are more likely abnormal or artificial.]

F. GROUP RELATIONSHIPS; CLASSIFICATORY CHANGES.

Classification of Rhizopods: in this designation CASH & HOPKINSON (63) do not include Foraminifera, but make two orders [?] Amœbina and Conchulina; the former includes *Lobosa*, *Vampyrellida*, and *Reticulosa* (with *Biomyxa* and *Chlamydomyxa*), the latter the Testaceous forms.

SCHULZE (431) finds that certain families of Haeckel's "deep-sea Ceratosa," namely, the *Psamminidæ* and the *Stannomidæ*, together with one or two other genera, *Cerelasma* and *Psammophyllum* of the *Spongeliidæ*, are not Metazoa, but plasmodium-forming Protozoa, which he includes with the Rhizopods and allies to the Foraminifera.

On the earliest indications of the phylogenetic development of shell-dimorphism, in the Foraminifera; "the microspheric form to be regarded as some steps higher on the phylogenetic ladder than the megalospheric," RHUMBLER (375).—General remarks on the classification of Foraminifera by shell-form and structure, SCHLUMBERGER & DOUVILLE (413).

Classification and inter-relationships of the *Heterosteginidae*, including *Spiroclypeus* n. g., DOUVILLE (113).—On the constitution of the Foraminiferan sub-family, *Orbitoidinæ*, SILVESTRI (449).

Materials for a classification of the colony-forming Radiolaria (*Sphaerozœa*): 2 families (*Sphaerozoida* and *Collosphaerida*) recognized, their cha-

racteristics and constituent forms, BRANDT (40).—Phylogeny and classification of the Monopylaria, JØRGENSEN (204).

Classification, origin, and inter-relationships of the different orders of Sporozoa considered at length, CRAWLEY (94).—Classification of the Hæmocystozoa (Hæmosporidia); LAVERAN (240) places all the known forms in 3 genera, *Hæmamæba*, *Hæmogregarina*, and *Piroplasma*.

On the affinities of *Piroplasma donovani* (cultural forms) with Herpetomonads, CHRISTOPHERS (85) and LEISHMAN & STATHAM (253).

Classification of the *Microsporidia*, PEREZ (344).—Systematic position of *Myxocystis* defined, HESSE (177 & 179).

Relationships and systematic position of the Actinomyxidia discussed, CAULLERY & MESNIL (72).

Constitution of the order Haplosporidida; mutual relationships of the different parasites usually considered as "Sporozoa incertæ sedis," CAULLERY & MESNIL (71). The authors recognize 3 definite families: (a) *Haplosporidiidae*, including *Haplosporidium* and *Urosporidium*, (b) *Bertramidae* for *Bertramia* and (provisionally) *Ichthyosporidium*, and (c) *Celosporidiidae* for *Celosporidium*, *Polycaryum*, and (perhaps) *Blastulidium*. *Scheviakovella* and various Serosporidia are probably closely related to this order, *Joyeuxella*, *Metschnikovella*, and other forms less so.

G. MISCELLANEA.

1. Cultivation and infection.

Methods of obtaining and cultivating pond-life Protozoa (*Amœba*, *Paramecium*, *Euglena* and others) for laboratory purposes, SMITH (461).

Artificial cultivation of: *Amœba*, MUSGRAVE & CLEGG (308); *Amœba limax* in various media, VAHLKAMPF (492); the *Amœba* of tropical dysentery (*Entamoeba histolytica*), LESAGE (259).

Successful artificial cultivation, and behaviour and morphological characters of the parasites thus obtained, in the case of: *Trypanosoma lewisi* and *T. brucei*, SMEDLEY (460); *T. duttoni*, THIROUX (486); *T. padderi*, THIROUX (485); Trypanosomes of birds, NOVY & MCNEAL (323).

Cultivation of Flagellate ("Trypanosome") forms from the Leishman-Donovan body (*Piroplasma donovani*), CHATTERJEE (80).—Cultures of Flagellate forms from Leishman-Donovan bodies develop most rapidly in an acid medium; hence the probability of some blood-sucking Insect conveying the infection, ROGERS (385).—MACKIE (274) thinks the Leishman-Donovan parasites are transmitted rather by the agency of water.

Transmission of *Piroplasma canis* by different species of tick in different parts (e.g. *Ixodes reduvius*, Italy (?), *Dermacentor reticulatus*, France, *Hæmaphyalis leachi*, South Africa, NUTTALL & GRAHAM-SMITH (325).—Transmission of bovine piroplasmosis (*P. bigemimum*) by the progeny of ticks (*Rhipicephalus decoloratus*), LAVERAN & VALLÉE (245).—Infection of East African Coast fever (*Piroplasma parvum*) transmitted by *Rhipicephalus appendiculatus*, THEILER (480).

El-Debab, a trypanosomosis of North Africa, probably conveyed by *Tabanus (Atylotus) nemoralis* or *T. tomentosus*, SERGENT (439).—Infection of a dog by contagion with the Trypanosome of North-African Surra (not Dourine), ROGER (383).

Probability of transmission of *Hæmogregarina mauritanica* from one *Testudo* to another, by means of ticks (*Hyalomma*), but only by the hereditary infection of the tick-progeny, NICOLLE & COMTE (315).

Review of cases of true hereditary infection by Protozoa, MESNIL (293).

2. Technique.

Discussion on various methods of staining Protozoa, GIEMSA (157) and MARINO (280).

Differences in staining-tints taken on by living and dead protoplasm, using a mixture of neutral-red and methylene-blue, exemplified by Rhizopods and Flagellates, RYZICKA (393).

A permanent variety of Nocht's stain (Nocht-Jenner stain) useful for chromatin staining, in malarial parasites, etc., HASTINGS (174).

Useful methods for staining and preparing Infusoria, MAGNIZKY (276).

3. Bibliography, etc.

Protozoan bibliography for 1904, with short abstracts of the principal papers, MAYER (285).

Lists of Protozoan literature for 1904 (2nd to 4th pts.) and 1905 (1st and 2nd pts.), SCHAUDINN (405).—Protozoan bibliography (mostly for 1902), ANON. (1).

Bibliography of literature relating to fresh-water biological investigations for the years 1901 and 1902 (Protozoa, chiefly pp. 385 & 386, 414-418), v. DALLA TORRE (100).

List of genera and species of Foraminifera founded by the late C. Schlumberger, SILVESTRI (455).

Foraminifera in Dr Battaglia Rizzo's collection of fossils, Fusco RAO (154).

BENTLEY (21) and JAMES (189) discuss whether the latter has sufficiently recognized the former's claim to be the discoverer of a new "Leucocytozoon" of dogs.—Discussion as to who can claim priority for first describing the Surra Trypanosome (*T. evansi*) in cattle in India, HOLMES (183), MARTIN (281), and PEASE (332).

III. DISTRIBUTION.

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Pacific Ocean (various stations), *Globigerina*-ooze, FLINT (140).

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British fresh-water Rhizopods, CASH & HOPKINSON (63).

Bognor, Sussex, Foraminifera from shore-sand, many rare or new to Britain, EARLAND (119).—Rossendale, wells and troughs, Rhizopods and Infusoria from, LORD (270).

Loch Ness, Scotland, Rhizopods from, listed, PENARD (334), and MURRAY (306).—Orkneys and Shetlands, freshwater Rhizopods and Heliozoa from, WEST (503).

Norwegian Fiords, Foraminifera, NORDGAARD (321).

East Finmark, Foraminifera, NORMAN (322).

Coxyde and Nieuport, Belgium, Mastigophora from, listed, including several forms regarded as new, but named only, MASSART (284).

Freiburg-i-Breisgau, Infusoria, listed, with notes, HENDERSON (176).

Swiss Lakes, Rhizopods and Heliozoa from, PENARD (338).—Lake of Geneva, a new Flagellate (probably a *Dinema*), PENARD (339).—Lake of Neuchatel, full list of Protozoa occurring in, GODET (159).

Alpine lakes between valleys of Vigezzo and Onsernone, Protozoa, MONTI (301).—Lakes of Montiggle (South Tyrol), littoral and profundal Protozoan fauna, HUBER (185).

Coast of the Island of Delos (Grecian Archipelago), Foraminifera, SIDEBOTTOM (442).

Asia :—

Siam, Java, Sandwich Islands, etc., Mastigophora observed, LEMMERMANN (257).

Australasia:—

Australia, different localities, from sands, Foraminifera, JENSEN (199).
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- Freshwaters of Connecticut, Protozoa, listed and described, CONN (91).
- Brush Lake, Ohio, Protozoa, listed, RIDDLE (378).
- New Hampshire, White Mountain region, Rhizopods, CUSHMAN & HENDERSON (97).
- Delaware Valley, *Trachelomonas* spp., PALMER (329).
- Virginia, U.S.A., occurrence of *Paulinella chromatophora*, KEPNER (209).
- Bermuda Banks, shoal-water deposits, Foraminifera, BIGELOW (24).
- Paraguay, Protozoan fauna of, v. DADAY (99).

B. GEOLOGICAL.

Eocene, Miocene, and Récent spp. of *Globigerina*, originally described by d'Orbigny, notes on and figures of, FORNASINI (142).

Cretaceous, Miocene, and Recent forms of *Amphistegina*, as described by d'Orbigny, notes on, FORNASINI (143).

Quaternary:—Boulder Clay, Lancashire, Foraminifera, READE (371).
Pleistocene Clays, Taranto (Terra d'Otranto), Foraminifera, BASSANI (14).
Glacial deposits near Frankfurt a. O., Cretaceous and Tertiary, Foraminifera in, HUCKE (186).

Pliocene or Recent, Rimini (Adriatic), Foraminifera, listed and notes, FORNASINI (146); Ravenna, *Textularidae* from, id. (145).

Tertiary:—Tertiaries, Borneo and Indo-Malay, Foraminifera, DOUVILLE (113).

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Miocene, Tripoli di Condro (Sicily), Radiolaria, COCCO (89).
Miocene deep-boring, Bremen, Foraminifera, JORDAN (202).
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Oligocene ("Rupelton" above bituminous sandstone), Heppenheim, Foraminifera, STEUER (474).

Lower Oligocene, Riszkania (Mid-Carpathians), Foraminifera, WOJCIK (505).

Upper Eocene, Vicentin (Pederiva), *Nummulites* and *Orthophragmina* in quantities, corresponding to those at Biarritz, BOUSSAC (36).

Upper Eocene, Termini-Imerese, *Lepidocyclina* n. spp., CHECCHIA-RISPOLI (83).

Middle Eocene, Dalmatia (various localities), Foraminifera, SCHUBERT (423 & 424); Southern Istria (Albona), Foraminifera, id. (425).

Middle Eocene, Istrio-Dalmatia, Foraminifera, SCHUBERT (426).
Eocene, France (various localities), *Dictyoconus egyptiensis* and *Lituonella roberti* n. g., n. sp., SCHLUMBERGER & DOUVILLE (413).

Eocene (Nummulitic zones), basin of the Adour (Biarritz and Bayonne), *Nummulitidae*, DOUVILLE (112).

Eocene (Nummulitic limestone), Aude and Hérault, Foraminifera, DONCIEUX (104).

Eocene (Nummulitic limestone), Saint Acheul, *Nummulites planulata* and *N. levigata*, DELAMBRE (103).

Eocene (Nummulitic limestone), Oltrepo, Appennines, Foraminifera, PREVER (359).

Eocene ("scaglia" and calcareous), Central Appennines, *Nummulitidae*, PNEVER (360).

Eocene, S. Genesio (near Turin), *Rupertia* n. spp., LEARDI in AIRAGHI (246).

Eocene, Talamonchi (Anghiari), *Lepidocyclinae* and other Foraminifera, SILVESTRI (450).

Eocene, Syracuse, *Nummulitidae*, CHECCHIA-RISPOLI (82).

Eocene, Sicily (Sciaccia), *Lepidocyclina selinuntina*, CHECCHIA-RISPOLI (81).

Eocene, Sicily, *Alveolina* spp., CHECCHIA-RISPOLI (84).

Eocene limestones, Somaliland, Foraminifera (chiefly *Operculina*), NEWTON (314).

Secondary :—Eocene to Cretaceous, France, new *Miliolidae*, SCHLUM-BERGER (411).

Cretaceous (Gault), Isle of Wight, Foraminifera, READE & HOLLAND (372).

Cretaceous (Gault), Bartin (Pomerania), Foraminifera, HUCKE (187).

Cretaceous (Gault), Portugal, also Voreppe (Isère), *Choffatella decipiens* n. g., n. sp., SCHLUMBERGER (409).

Irish Greensand, Foraminifera, GOUGH (161).

Lower Greensand, Little Coxwell, near Faringdon, Foraminifera, DAVEY (101), also WRIGHT (510).

Cretaceous, Meaudre (Isère), *Orbitoides* spp., PAQUIER (331).

Cretaceous, Monte Euganei, Radiolaria, SQUINABOL (463).

Cretaceous (serpentine argillites), Appennines, Foraminifera and Radiolaria, SAUO (396).

Cretaceous, deep-boring, Bremen, Foraminifera, JORDAN (202).

Cretaceous, Greece (Peloponesia), *Nummulitidae*, NÉGRIS (311).

Cretaceous, Persia, Foraminifera (*Loftusia persica*, *L. morgani* n. sp., and *Omphalocyclus macropora*), DOUVILLÉ (108 & 109).

Primary :—Permo-Carboniferous limestones, New South Wales, Foraminifera, CHAPMAN & HOWCHIN (79).

C. PARASITIC (including commensalism).

Protozoa :—In *Amœba terricola*, nucleus, *Nucleophaga amœbæa* (a Fungus), PENARD (335).

Symbiotic with *Pelomyxa*, the well-known Bacterial rods, described as *Cladothrix pelomyzae* n. sp., VELEY (496).

Ectoparasitic on *Amœba*, various species ("Ouramœba"), Fungal filaments (*Entomophthoraceæ* or *Saprolegniaceæ*), PENARD (334).

In *Pseudodifflugia horrida*, an Infusorian parasite of unspecified genus, PENARD (337).

Chaetopoda :—In *Limnodrilus hoffmeisteri*, intestine and body-cavity, *Myxocystis mrazekii* n. sp., HESSE (177 & 179).

In *Mesenchytræus flavus* (freshwater), intestinal epithelium, *Haplosporidium vejdovskii* n. sp., CAULLERY & MESNIL (67).

In *Potamilla torelli*, body-cavity, *H. potamillæ* n. sp., CAULLERY & MESNIL (67).

In *Salminina dysteri*, body-cavity, *H. marchouxi* n. sp., CAULLERY & MESNIL (67).

In *Syllis gracilis*, body-cavity, *Urosporidium fuliginosum* n. g., n. sp., CAULLERY & MESNIL (67).

Crustacea :—In *Balanus amaryllis*, body-cavity, *Glugea stempelli* n. sp., PEREZ (343).

In *Carcinus mænas*, musculature (except of heart), *Nosema pulvis* n. sp., PEREZ (341).

In spider-crabs (*Inachus dorsettensis* and *I. scorpio*), wall of the intestine, projecting into the body-cavity, *Aggregata inachi* n. sp., SMITH (462).

Insecta :—In the following South Russian Lepidoptera: *Aporia cratægi*, *Botys sticticalis*, *Emmelia trabealis*, *Heliothis dipsaceus*, *Hyponomeuta evonymella*, *H. malinella*, and *Mamestra oleracea*, in the blood-channels, fat-bodies and other organs and tissues, *Microklossia prima* n. g., n. sp., KRASSILSTCHIK (219).

In *Blattella germanica*, Malpighian tubules, *Cælosporidium blattellæ* n. sp., CRAWLEY (93).

In *Betis rhodani* (larvæ), fat-bodies chiefly, *Nosema vayssierei* n. sp., HESSE (178).

In *Bombyx mori*, body spaces and blood-channels, *Herpetomonas bombycis* n. sp., LEVADITI (260).

In *Ceratopogon solstitialis* (larvæ), intestine, *Tæniocystis mira* n. g., n. sp., LÉGER (248).

In *Dendarus tristis*, intestine, *Gregarina cavalierina* n. sp., BLANCHARD (29).

In a louse (*Hæmatopinus spinulosus*), many or most of the organs (*via* the circulation), *Trypanosoma lewisi*, PROWAZEK (362).—In *H.* sp., intestinal diverticula and body-cavity, cysts of *Hæmogregarina gerbilli* n. sp., CHRISTOPHERS (86).

In *Helennophorus collaris*, intestine, *Stylocynchus gladiator* n. sp., BLANCHARD (29).

In *Melophagus ovinus* (sheep-louse), gut, Trypanosome-like parasites, PFEIFFER (349).

In *Omophlus brevicollis*, Malpighian tubes, *Thelohania cepedei* n. sp., HESSE (178).

In *Otiornynchus fuscipes*, abdominal cavity, *Nosema longifilum* n. sp., id. (178).—In *O. f.*, intestinal epithelium, *Mycetosporidium talpa* n. g., n. sp., LÉGER & HESSE (251).

In Termites (unspecified), from Chili, intestine, *Calonympha grassii* n. g., n. sp., and *Devescovina striata* n. g., n. sp., FOA (141).

Arachnida :—In *Hyalomma ægyptium*, intestine, cysts and sporozoites of a Protozoan (probably phases in a Hæmogregarine of *Testudo*), LAVERAN & NÈGRE (244).

Pisces :—In bream (*Abramus*), blood, *Trypanoplasma guernei*, n. sp., BRUMPT (55).

In *Alosa finta*, branchial filaments and tissue, a new Myxosporidian, unspec., MAZZARELLI (286); named, *Branchiophaga*, n. g., id. (287).

In *Bothus rhombus*, blood, *Hæmogregarina bothi* n. sp. and *Trypanosoma b.* n. sp., LEBAILLY (247).

In *Box boops*, œsophagus and stomach, *Trypanoplasma intestinalis* n. sp., LÉGER (249).

In brook-trout, nervous system, *Myxobolus neurobius* n. sp.; in subcutaneous tissue, *Henneguya niisslini* n. sp., SCHUBERG & SCHRÖDER (420).

In carp, subepithelial layer of the intestine, *Coccidium subepithelialis* n. sp., MOROFF & FIEBIGER (302).

In *Clarias (Silurus) clarias*, Cochin China, blood, *Trypanosoma clariae* n. sp., MONTEL (300).

In *Cobitis barbatula*, kidneys and bladder, *Henneguya légeri* and *Myxidium barbatulae* n. spp., CÉPÈDE (77).

In *Colossoma brachypoma*, intestine, *Nyctotherus piscicola* n. sp., v. DADAY (98).

In *Crenilabrus melops*, forming a dermal tumour, *Ichthyosporidium phymogenes* n. g., n. sp., CAULLERY & MESNIL (68).

In *Liparis vulgaris* and *Motella mustela*, glandular canals of stomach and pyloric cæca, *Ichthyosporidium gasterophilum* n. sp., CAULLERY & MESNIL (68).

In pompano (*Trachinotus carolinus*), red drum (*Sciaenops ocellatus*), and sheepshead (*Archosargus probatocephalus*), stomach and intestine, also pectoral fins, *Myxobolus* (*Henneguya*) sp., LINTON (265).

In a Siluroid fish (*Saccobranchus fossilis*), blood, *Trypanosoma saccobranchi* n. sp., CASTELLANI & WILLEY (66).

Amphibia:—In frogs (incert.) from Madagascar, blood, *Hæmogregarina neireti* n. sp., LAVERAN (236).

In *Proteus anguineus*, renal tubules, *Chloromyxum protei* n. sp., JOSEPH (205).

In *Rana angolensis* (Transvaal), blood, *Hæmogregarina theileri* n. sp., LAVERAN (236).—In *R. catesbeiana*, blood, *H. catesbeiana* n. sp., STEBBINS (469).—In *R. c.* and *R. clamata*, blood, *Karyolysus clamatae* n. sp., STEBBINS (468).—In *R. esculenta*, blood, *Trypanosoma rotatorium* var. *nana* n. var., SERGENT (438).

In newt (*Triton cristatus*), red blood-corpuscles, *Lankesterella tritonis* n. sp., FANTHAM (126).

Reptilia:—In *Testudo pardalis*, blood, "Hæmamæba" *testudinis* n. sp., LAVERAN (238).

In *Varanus niloticus*, blood, *Hæmogregarina varani* n. sp., LAVERAN (237).

Aves:—Occurrence of "Hæmamæba" and Trypanosomes in various North African birds, SERGENT (436).

In various birds (*Agelaius phoeniceus*, *Colaptes auratus*, *Cyanocitta cristata*, *Icterus galbula*, *Melospiza fasciata*, *Merula migratoria*, *Passer domesticus*, *Sialia sialis*, and *Zenaidura macroura*), blood, *Trypanosoma avium*, NOVY & MCNEAL (323).

In *Buteo lineatus*, blood, *Trypanosoma mesnili* n. sp., NOVY & MCNEAL (323).

In *Spinus tristis*, blood, *T. laverani* n. sp., id. (323).

In *Meleagris gallopavo domestica* (turkey), probably in leucocytes (not haematids) "Hæmamæba" *smithi* n. sp., LAVERAN & LUCET (242).

In *Perdix cinerea*, blood, "H." *relictæ*, LAVERAN & LUCET (242).

In *Polyplectrum germani* (Annam), blood, *Trypanosoma polyplectri* n. sp., VASSAL (493).

In a swallow, blood, "Hæmamæba" *danilewskyi* var. *hirundinis* n. var., SERGENT (436).

In an African dove (*Treron calva*), blood, a Trypanosome, WELLMAN (501).

Mammalia:—In cattle (apparently restricted to *Bovidae*), blood, *Trypanosoma nanum* n. sp., LAVERAN (235).

In dogs (India), white blood-corpuscles, a new Hæmosporidian ("Leucocytozoon" *canis*), JAMES (190) and BENTLEY (20).

In *Arvicola nivalis*, intestine, *Coccidium arvicola* n. sp., GALLI-VALERIO (155).

In *Jaculus orientalis* (gerboa), blood, *Hæmogregarina balfouri* n. sp., LAVERAN (227); also in *J. gordoni* (*J. j.*), BALFOUR (7).

In *Mus decumanus* (Norway), leucocytes, a Hæmatozoan apparently identical with *Hæmogregarina balfouri*, BALFOUR (7).—In *M. musculus* (Senegal), blood, *Trypanosoma duttoni* n. sp., THIROUX (484).

In *Myoxus glis* (dormouse), blood, *Trypanosoma blanchardi* n. sp., BRUMPT (55).

In an Indian rat (*Gerbillus indicus*), blood (red-corpuscles), *Hæmogregarina gerbilli* n. sp., CHRISTOPHERS (86).

- In *Sciurus griseimanus* (Annam squirrel), blood-corpuses, a new "Hemamæba," VASSAL (494 & 495).
- In *Tulpa europaea*, blood, *Trypanosoma* sp., probably new, PETRIE (348).—In moles, blood, a new Haematozoan, perhaps a *Piroplasma*, GRAHAM-SMITH (163).
- In badger (*Meles taxus*), blood, *T. pestanae* n. sp., BETTENCOURT & FRANÇA (22).
- In bats (*Vesperugo pipistrellus*, *V. nattereri*, and *V. serotinus*), blood, *T. dionisi* n. sp., id. (23).
- In *Myotis murinus*, blood, *Trypanosoma nicolleorum* n. sp., SERGENT (435).
- In *Pipistrellus pipistrellus*, blood, *Trypanosoma* sp., PETRIE (348).
- In bats (*Vesperugo pipistrellus*), blood, malarial parasites (ring-forms) and Trypanosomes, described but not specified, KISSKALT (211).
- In *Vespertilio kuhli*, blood, *Trypanosoma nicolleorum* and *T. vespertilionis* (prov. n. sp.), SERGENT (435).
- In *Macacus rhæsus*, thigh muscles, a *Sarcosporidium*, DE KORTÉ (218).
- In Man, septum nasi, a new Haplosporidian, *Rhinosporidium kinealyi*, MINCHIN & FANTHAM (298).
- In human faeces, *Entamaba undulans* n. sp., and *Nyctotherus africanus* n. sp., CASTELLANI (64).

IV. SYSTEMATIC.

[Note. Only new forms, forms whose occurrence is of special interest, and forms described and figured are mentioned specifically.]

A. PROTOZOA IN GENERAL.

[For lists of Protozoa from various localities, see under Plankton (II. c. 1) and Distribution (III. A).]

B. GYMНОMYXA.

1. MYCETOZOA.

(a) Protomyxidea:—

Arachnula vesiculata n. sp., occurrence and description, PENARD (337) p. 612, pl. 14, figg. 31 & 32.
Gymnophrys cometa, remarks on, PENARD (337) p. 615, pl. 14, figg. 33–35.

(b) Mycetozoidea:—

Plasmodiophora brassicae, description of, chiefly with regard to nuclear division and conjugation, PROWAZEK (363) pp. 396–410, pl. 7.
 Allied to Mycetozoa, *Mycetosporidium* n. g. *talpa* n. sp., vegetative plasmodia, and sporulation of, described, LÉGER & HESSE (251) pp. 92–94.

2. RHIZOPODA.

Rhizopods, general account of morphology, physiology, distribution and classification of; systematic enumeration of British forms, with full synonymy, CASH & HOPKINSON (63).

Rhizopods: from the Swiss Lakes, occurrence and description, with text-figs. for all species, PENARD (338); White Mountain region, New Hampshire, notes on, CUSHMAN & HENDERSON (97) pp. 147–155;

and Heliozoa from deep-lakes, interesting remarks on, MURRAY (306) & PENARD (334).

Xenophyophora nom. nov. for a remarkable new group, placed by SCHULZE (431) among the Rhizopods and allied with the Foraminifera. It includes (so far) the families *Psamminidae* and *Stannomidae* of Hckl, in a modified sense. Classification, pp. 46-50. (All from "Valdivia" Material, Deep-Sea Expedition.)

Psamminidae, with no "linellæ."

Cerelasma, p. 21, *C. gyrosphæra*, p. 21, pl. 2, figg. 5-11, pl. 3, figg. 1 & 2, *C. lamellosoa*, p. 24, pl. 3, fig. 3, described, SCHULZE (431).

Holopsamma, p. 25, *H. cretaceum*, p. 26, pl. 3, figg. 4-6, *H. argillaceum*, p. 27, described, SCHULZE (431).

Psammetta n. g. p. 6, *P. erythrocytomyorpha* n. sp., p. 6, pl. 1, pl. 2, figg. 1-4, described, SCHULZE (431).

Psammina globigerina, p. 18, *P. plakina*, p. 20, *P. nummulina*, p. 20, described, SCHULZE (431).

Psammopemma calcareum, p. 28, *P. radiolarium*, p. 27, notes on occurrence, SCHULZE (431).

Stannomidae, with "linellæ."

Stannarium alatum, p. 45, *S. concretum*, p. 46, notes on occurrence, SCHULZE (431).

Stannoma coraloides, p. 35, pl. 4, fig. 4, *S. dendroides*, p. 32, pl. 4, figg. 1-3, 5-10, described, SCHULZE (431).

Stannophyllum, p. 36, *S. zonarium*, p. 37, pl. 5, pl. 6, figg. 1 & 2, *S. radiolarium*, p. 41, pl. 7, fig. 1, *S. reticulatum*, p. 44, pl. 6, figg. 3-5, *S. globigerinum*, p. 43, pl. 7, figg. 2 & 3, described, SCHULZE (431).

(a) Lobosa:—

Amœba, existence of a true genus (comprising numerous species), well-characterized if somewhat difficult to diagnose, and quite distinct from the host of amœboid organisms collectively included in the term "Amœbæ," PENARD (336) pp. 401-409; *A. angulata* Mer., p. 322, text-figg. 1-5, *A. humilis* n. sp., p. 331, text-figg. 9-11, *A. penardi* n. sp., p. 329, text-figg. 6-8, described, SCHOUTEDEN (417); *A. blattæ*, pp. 6-23, pl. 1, figg. 1-10, pl. 2, *A. proteus*, pp. 23-39, pl. 1, figg. 11-13, general description of, SCHUBOTZ (427); *A. doffleini* n. sp., mode of nutrition, etc., and trophic nuclear changes in, described, NERESHEIMER (312) pp. 147-165, pl. 7, 13 text-figg.; *A. limax*, structure, nuclear division, and biology, described, also artificial cultivation of, VAHLKAMPF (492) pp. 167-220, pl. 6; *A. salina* n. sp., with peculiar pseudopods, occurrence and diagnosis, HAMBURGER (172) pp. 126-128, pl. 6, figg. 18-22; *A. terricola*, structure and properties of membrane, cytoplasm, and manner of locomotion in, pp. 176-195, figg. 1-8, *A. t.*, effects on, produced by the attack of *Nucleophaga amœbæa*, p. 195, figg. 9-12, *A. t.*, p. 199, fig. 13, *A. papyracea* n. sp., p. 201, fig. 14, *A. similis*, p. 201, fig. 15, *A. sphæronucleolus*, p. 202, fig. 16, *A. fibrillosa*, p. 202, fig. 17, *A. alba*, p. 203, fig. 18, *A. striata*, p. 204, fig. 19, and *A. vesiculata*, p. 204, fig. 20, occurrence and diagnostic characters, PENARD (335).

Arcella rota n. sp., p. 9, pl. 1, figg. 1-5, *A. marginata* n. sp., p. 11, pl. 1, figg. 6-8, Paraguay, described, v. DADAY (99); *A. vulgaris*, process of encystment, degeneration appearances, and formation of secondary nuclei in, described, MARTINI (282) pp. 574-619, pls. 28-30; *A. v.* var. *compressa* n. var., occurrence and diagnosis, CASH & HOPKINSON (63) p. 138, text-fig. 28.

Centropyxis aculeata var. *spinosa* n. var., occurrence and description, CASH & HOPKINSON (63) p. 135, pl. 16, fig. 15, text-fig. 26.

Cochliopodium crassiusculum n. sp., p. 592, pl. 13, fig. 7, *C. longispinum*,

p. 595, pl. 13, fig. 11, described, PENARD (337) ; *C. pellucidum*, minute structure of, and varieties of pseudopodia in, FAURÉ-FREMIET (129) pp. 497-499 ; *C. p.*, 2 varieties distinguished, var. *putrinum a nov.* and var. *putrinum β nov.*, also occurrence of fuchsinophilous grains described, representing an internal secretion, id. (130) pp. 905-907 ; *C. p.*, full detailed account of, id. (138) pp. 1-68, pls. 1 & 2, 21 text-figs.

Difflugia ampullula n. sp., occurrence and note on, ZACHARIAS (511) p. 228 ; *D. lobostoma*, p. 14, var. *impressa n. var.*, p. 15, pl. 1, figg. 11-14. *D. urceolata* var. *quadrialata n. var.*, p. 17, pl. 1, fig. 15, var. *ventricosa n. var.*, p. 17, pl. 1, fig. 16, Paraguay, diagnosed, v. DADAY (99) ; *D. piriformis*, remarks on, PENARD (337) p. 596, pl. 13, figg. 12-14 ; *D. prestans n. sp.*, p. 25, 1 fig., *D. elongata n. sp.*, p. 33, 1 fig., Swiss lakes, diagnosed, PENARD (338) ; *D. (n. sp.?)* from Loch Ness, note on, PENARD (334) p. 599, text-fig. 1.

Dinamœba mirabilis, notes on, PENARD (337) p. 590, pl. 13, figg. 8-10.

Entumœba (histolytica), judging from cultural characters of dysentery, successfully cultivated, LESAGE (259) pp. 9-16, pls. 1 & 2 ; *E. [?] undulans n. sp.*, remarkable for the possession of an undulating membrane, occurrence and note on, CASTELLANI (64) pp. 67-69, text-figs. 3-5. [It is by no means unlikely that an abnormal form of *Trichomonas* is in question.]

Nebela bicornis n. sp., plankton, Scottish lochs, diagnosed, WEST (503) p. 91, 1 text-fig. ; *N. bigibbosa*, remarks on, PENARD (337), p. 600, pl. 13, figg. 16-19.

"*Ouramœba*," really an ordinary *Amœba* (spp. var.) on which certain Fungal filaments (*Entomophthoraceæ* or *Saprolegniaceæ*) are ecto-parasitic, PENARD (337) pp. 585-588, pl. 13, figg. 1-6.

Paulinella chromatophora, description of, chiefly with regard to the structure of the shell, and the chromatophores, PENARD (337) pp. 603-610, pl. 14, figg. 20-28 ; *P. c.*, occurrence Virginia, U.S.A., and notes on, KEPNER (209) pp. 128 & 129, 1 fig.

Pelomyxa palustris, study of the symbiotic Bacteria (*Cladothrix pelomyxa n. sp.*) and the refringent bodies and their importance, in, VELEY (496) pp. 374-395, pls. 36-38 ; *P. penardi n. sp.*, occurrence and diagnosis, RHUMBLER (376) p. 50, text-figs. 2, 6, 10, 11.

Placocysta jurassica n. sp., diagnosis and occurrence, PENARD (337) p. 611, pl. 14, figg. 29 & 30.

Quadrula irregularis, remarks on, PENARD (337) p. 559, pl. 13, fig. 15.

(b) Foraminifera :—

Arenaceous Foraminifera, comprehensive account of morphology of, and general conclusions arrived at, KEMNA (207) pp. xi-xlviii.

Foraminifera from :—Bermuda Banks (shoal-water deposits), BIGELOW (24) ; shore-sand, Bognor, Sussex, EARLAND (119) ; Norwegian fiords, listed, NORDGAARD (321) p. 192) ; East Finmark, NORMAN (322) ; Island of Delos (Grecian Archipelago), SIDEBOTTOM (442).

†Foraminifera, mostly lists, from :—Pleistocene clays, Taranto (Terra d'Otranto), BASSANI (14) p. 57 ; Upper Eocene, Vicentin, *Nummulites* and *Orthophragmina* in abundance, corresponding with those at Biarritz, BOUSSAC (36) ; Miocene, Santo (New Hebrides), CHAPMAN (78) ; Eocene (Nummulitic limestone), Dept. Aude and Hérault, notes on, DONCIEUX (104) ; Tertiaries, Borneo, noted and tabulated, DOUVILLÉ (113) ; Pliocene (or Recent), Rimini (Adriatic), notes on, and figures from d'Orbigny ("Planches inédites"), FORNASINI (146) ; Irish Greensand, GOUGH (161) ; Glacial deposits (Cretaceous and Tertiary forms), Frankfurt a.O., HUCKE (186) ; Cretaceous (Gault), Bartin (Pomerania), id. (187) ; Miocene and Cretaceous, deep-boring

- at Bremen, JORDAN (202); Eocene limestones, Somaliland (chiefly *Operculina*), NEWTON (314); Boulder Clay, Lancashire, READE (371); Cretaceous (Gault), Isle of Wight, READE & HOLLAND (372), p. 57; Middle Eocene, Istria-Dalmatia, from different zones, SCHUBERT (426); Middle Eocene, Dalmatia (various localities), with remarks, id. (423 & 424); Albona (Southern Istria), id. (425); Eocene, Talamonchi (Anghiari), *Lepidocyclinæ* and others, SILVESTRI (450); Oligocene ("Rupelton") Heppenheim, STEUER (474); Lower Oligocene, Riszkania (Mid-Carpathians), Galicia, WOJCIK (505); Lower Greensand, Little Coxwell, Faringdon, DAVEY (101) pp. 37 & 38, pl. 5 (of unspecified types); also WRIGHT (510), pp. 238 & 239.
- †*Adelosina bicornis*, p. 26, figg. 18-20, occurrence and notes (figg. from d'Orbigny), FORNASINI (146).
- †*Alveolina*, notes on the genus, pp. 149-154, *A. ellipsoidalis*, p. 155, pl. 12, fig. 1, *A. e. var. lepidula*, p. 156, pl. 12, fig. 2, *A. crenæ n. sp.*, p. 156, pl. 12, figg. 3-5, *A. ciafaloi*, p. 157, pl. 12, figg. 16-18, *A. oblonga*, p. 158, pl. 12, figg. 6 & 7, *A. canavurii*, p. 159, pl. 12, figg. 19-25, pl. 13, figg. 1-4, *A. elongata*, p. 160, pl. 12, fig. 15, *A. schwageri n. sp.*, p. 162, pl. 12, figg. 11-14, *A. di-stefanoi n. sp.*, p. 163, pl. 12, figg. 8-10, *A. violæ n. sp.*, p. 165, pl. 13, figg. 5-10, *A. (sub-gen. Flosculina) decipiens*, p. 163, pl. 13, figg. 11-15, *A. (F.) pasticillata*, p. 164, pl. 13, figg. 16-18, Eocene, Sicily, described, CHECCHIA-RISPOLI (84); *A. bulloides*, p. 15, pl. 4, fig. 11, *A. ovoidea*, p. 15, pl. 4, fig. 12, *A. oblonga*, p. 15, pl. 4, fig. 13, *A. elongata*, p. 15, pl. 4, fig. 14 (d'Orbigny's forms and figures), interpreted and notes on, FORNASINI (147).
- †*Ammodiscus anceps*, p. 11, pl. 3, fig. 1, *A. millettianus*, p. 10, pl. 2, fig. 3, *A. (?) sp.*, p. 11, pl. 1, fig. 12, occurrence and remarks, CHAPMAN & HOWCHIN (79); *A. bartinensis n. sp.*, Bartin, diagnosed, HUCKE (187), p. 168, pl. 23, fig. 7.
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- +*Spirolina depressa*, p. 7, pl. 1, figg. 18 & 19, pl. 2, fig. 1, *S. striata*, p. 8, pl. 2, fig. 2, *S. laevigata*, p. 8, pl. 2, fig. 3, *S. pedum*, p. 8, pl. 2, figg. 4 & 5, d'Orbigny's forms and figures interpreted and notes on, FORNASINI (147).
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- Thurammina papillata*, occurrence and note, EARLAND (119) p. 201, pl. 11, figg. 6 & 7, pl. 14, figg. 1, 3.

- †*T. papillata*, occurrence and note on, CHAPMAN & HOWCHIN (79), p. 9, pl. 2, fig. 13.
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(b) *Chlamydophora*:—Vacant.

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4. RADIOLARIA.

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- Acanthosphæra teneriformis* n. sp., Norwegian Fiords, diagnosed, JØRGENSEN (203) p. 54.
- †*Acrosphæra mirabilis* n. sp., Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 187, pl. 2, fig. 5.
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- †*Carposphæra minima* n. sp., Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 186, pl. 2, fig. 4.
- †*Cenellipsis communis* n. sp., Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 197, pl. 4, fig. 4.
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- Chæniosphæra murrayana*, plankton, Bay of Biscay, note on, WOLFENDEN (506) p. 132.
- Chromyechinus borealis* n. sp., Norwegian Fiords, diagnosed, JØRGENSEN (204) p. 117, pl. 8, fig. 35, pl. 9, figg. 36 & 37.
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- †*Ellipsoxiphus euganea* n. sp., Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 197, pl. 4, fig. 5.
- †*Euchitonita euganea* n. sp., Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 204, pl. 6, fig. 1.
- †*Hagiastrum venetum* n. sp. (?), Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 205, pl. 6, fig. 3.
- †*Heliodiscus acutispina* n. sp., Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 202, pl. 5, fig. 3.
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- †*Lithostrobus communis* n. sp., p. 228, pl. 9, fig. 7, *L. incrassatus* n. sp., p. 228, pl. 9, fig. 6, *L. pagoda* n. sp., p. 229, pl. 9, fig. 8, Cretaceous, Italy, diagnosed, SQUINABOL (463).
- †*Lychnocanum euganeum* n. sp., p. 212, pl. 7, fig. 6, *L. parvulum* n. sp., p. 212, pl. 7, fig. 7, Cretaceous, Italy, diagnosed, SQUINABOL (463).
- Peridium hystrix* n. sp., p. 76, *P. longispinum* n. sp., p. 77, Norwegian Fiords, diagnosed, JØRGENSEN (203); *P. l.*, notes on, id. (204) p. 135, pl. 15, figg. 75–79, pl. 16, fig. 80.
- Phormacantha* n. g. (for *Peridium*) *hystrix*, diagnosed, JØRGENSEN (204) p. 132, pl. 14, figg. 59–63.

- +*Phormocampe elegans* n. sp., Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 227, pl. 9, fig. 5.
- Plectacantha* n. g. *oikiskos* nom. nov., p. 131, pl. 13, figg. 50-57, *P. trichoides* n. sp., p. 132, pl. 13, fig. 58, occurrence and diagnoses, JØRGENSEN (204).
- Protoscenium* n. g. (for *Plectanium*) *simplex*, diagnosed, JØRGENSEN (204), p. 133, pl. 15, fig. 69.
- Pterocorys theocorus* n. sp., p. 86, *P. gamphonyxos* n. sp., p. 86, *P. amblycephalis* n. sp., Norwegian Fiords, diagnosed, JØRGENSEN (203).
- +*Sciadiocapsa* n. g., p. 211, *S. euganea* n. sp., p. 211, pl. 7, fig. 5, Cretaceous, Italy, diagnosed, SQUINABOL (463).
- +*Sethamphora pulchra* n. sp., Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 213, pl. 5, fig. 8.
- +*Sethocapsa fossilis* n. sp., p. 216, pl. 7, fig. 13, *S. mucronata* n. sp., p. 217, pl. 7, fig. 14, *S. hispida* n. sp., p. 217, pl. 7, fig. 15, *S. megacephala* n. sp., p. 217, pl. 7, fig. 16, Cretaceous, Italy, diagnosed, SQUINABOL (463).
- +*Sethocystis perspicua* n. sp., p. 215, pl. 7, fig. 10, *S. (?) hirsuta* n. sp., p. 215, pl. 7, fig. 11, *S. communis* n. sp., p. 216, pl. 7, fig. 12, Cretaceous, Italy, diagnosed, SQUINABOL (463).
- +*Sethopyramis acuticephala* n. sp., Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 214, pl. 7, fig. 8.
- Stichocorys seriata*, Norwegian Fiords, notes on, JØRGENSEN (204) p. 140, pl. 18, figg. 102-104.
- +*S. pulchra* n. sp., Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 229, pl. 9, fig. 9.
- +*Stichomitra magna* n. sp., Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 234, pl. 10, fig. 8.
- Theocalyptira craspedota* n. sp., Norwegian Fiords, diagnosed, JØRGENSEN (203) p. 85.
- +*Theocapsa costata* n. sp., p. 223, pl. 8, fig. 10, *T. regularis* n. sp., p. 223, pl. 8, fig. 11, *T. nativoides* n. sp., p. 224, pl. 8, fig. 12, *T. minima* n. sp., p. 224, pl. 8, fig. 13, Cretaceous, Italy, diagnosed, SQUINABOL (463).
- +*Theoconus coronatus* n. sp., p. 220, pl. 8, fig. 3, *T. macroporus* n. sp., p. 220, pl. 8, fig. 4, *T. simplex* n. sp., p. 221, pl. 8, fig. 5, Cretaceous, Italy, diagnosed, SQUINABOL (463).
- +*Theocorys spinosa* n. sp., Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 222, pl. 8, fig. 9.
- +*Theocystis parvula* n. sp., Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 221, pl. 8, fig. 6.
- +*Theosyringium pulchrum* n. sp., Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 222, pl. 8, fig. 7.
- +*Tricolocampa obtusiceps* n. sp., Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 222, pl. 8, fig. 8.
- +*Tricolocapsa ovata* n. sp., p. 225, pl. 8, fig. 14, *T. minima* n. sp., p. 226, pl. 8, fig. 15, *T. oblonga* n. sp., p. 226, pl. 9, fig. 3, *T. veneta* n. sp., p. 226, pl. 9, fig. 4, Cretaceous, Italy, diagnosed, SQUINABOL (463).

(d) *Tripylaria (Phæodaria)*:-

- Tripylaria (Phæosphæria)* collected by the "Valdivia" and "Gauss," listed with notes, HÄCKER (169) pp. 637-648.
- Aulodendron heteracanthum* n. sp., diagnosed, HÄCKER (170) p. 348, text-fig. 8.
- Aulographis tristyla* n. sp., p. 359, text-fig. 13 f, HÄCKER (170).
- Aulographonium antarcticum* n. sp., p. 348, text-fig. 9, remarks on, HÄCKER (170).
- Auloscena atlantica* n. sp., p. 641, fig. 14, *A. robustissima*, p. 641, fig. 13,

- A. verticillus*, p. 642, fig. 4, *A. pelagica* n. sp., p. 643, fig. 6, occurrence and remarks, HÄCKER (169).
- Aulosphaera coronata* n. sp., p. 637, fig. 23, *A. filigera* n. sp., p. 637, fig. 24, *A. bisteraria*, p. 638, fig. 11, *A. robusta* n. sp., p. 639, fig. 12, *A. trispatus* n. sp., p. 639, fig. 25, occurrence and diagnoses, HÄCKER (169).
- Cannospheara lepta* n. sp., Norwegian Fiords, diagnosed, JØRGENSEN (203) p. 89; note on id. (204) p. 141, pl. 18, fig. 110.
- Challengeron heteracanthum* n. sp., p. 91, pl. 3, figg. 16 & 17, diagnosed, JØRGENSEN (203); *C. channeri*, p. 141, pl. 18, fig. 111, *C. armatum*, p. 111, pl. 18, fig. 112, Norwegian Fiords, notes on, id. (204).
- Gazelletta pentapodium* n. sp., Norwegian Fiords, diagnosed, JØRGENSEN (203) p. 94.
- Medusetta arcifera* n. sp., p. 93, pl. 4, fig. 23, Norwegian Fiords, diagnosed, JØRGENSEN (203).
- Sagenoarium antarcticum* n. sp., p. 646, fig. 27d, *S. furcatum* n. sp., p. 647, fig. 27a, *S. dicranon* n. sp., p. 647, fig. 27c, *S. verticillatum* n. sp., p. 647, fig. 27b, occurrence and diagnoses, HÄCKER (169).
- Sagenoscena lampadophora* n. sp., p. 344, text-fig. 6, *S. irminigeriana*, p. 351, pl. 15, fig. 1, text-fig. 11, *S. floribunda* n. sp., p. 359, text-fig. 13d, HÄCKER (170); *S. tetricantha* n. sp., p. 648, fig. 28, *S. irminigeriana*, p. 648, fig. 9, occurrence and remarks, HÄCKER (169).
- Sagoscena castra*, p. 644, fig. 26d, *S. digitata* n. sp., p. 644, fig. 26f, *S. floribunda* n. sp., p. 645, fig. 26c, *S. tentorium*, p. 644, fig. 26e, *S. prætorium*, p. 645, fig. 26b, *S. elegans*, p. 646, figg. 10, 26a, occurrence and diagnoses, HÄCKER (169).
- Tuscarus calathoides* n. sp., p. 356, *T. cepa* n. sp., p. 357, diagnosed, HÄCKER (170).

C. SPOROZOA.

Sporozoa, classification, origin, and inter-relationships of the different orders of, considered at length, CRAWLEY (94) pp. 607-624.

1. ECTOSPORA (TELOSPORIDIA).

(a) Gregarinidea:—

- Aggregata inachi* n. sp., relations to host (causing castration) and "coelomic" cysts of, described, SMITH (462) pp. 406-410, pl. 26.
- Anchorina sagittata*, growth and development of trophozoites of; relation of parasites to the host's intestine, CECCONI (76), pp. 230-244, pls. 9 & 10, 1 text-fig.
- Clepsydrina* (*Gregarina*) *ovata*, isogamous conjugation and changes leading up to, also spore-formation in, described, SCHNITZLER (416) pp. 309-333, pls. 16 & 17, 3 text-figs.
- Gonospora varia*, anisogamous gametes and conjugation in, described, BRASIL (43) pp. 17-38, pl. 2, figg. 5, 15-17, 2 text-figs.
- Gregarina cavalierina* n. sp., occurrence and short description, BLANCHARD (29) pp. 926-928.
- Monocystis* spp. var., slight differences in gametes and therefore anisogamous conjugation in, BRASIL (42) pp. 735 & 736, and, full account, (44) pp. 69-99, pls. 9 & 10.
- Stylocryynchus gladiator* n. sp., occurrence and short description, BLANCHARD (29) pp. 924 & 925.
- Teniozystis* n. g. *mira* n. sp., occurrence and description, LÉGER (248) pp. 524-526, 1 fig.

Urospora lagidis, anisogamous gametes and conjugation in, described, BRASIL (43) pp. 17-38, pl. 2, figg. 1-4, 6-14.

(b) Coccidiidea:—

Caryotropha mesnilii, changes and behaviour of the karyosome and nucleus in, during growth, and their significance, SIEDLECKI (444) pp. 559-581, pl. 16.

Coccidium arvicola n. sp., occurrence and diagnosis, GALLI-VALERIO (155) p. 520; *C. subepithelialis* n. sp., occurrence and short account of, MOROFF & FIEBIGER (302) pp. 166-174, pl. 8; *C. sp.* incert., in intestine of cattle in Tunis, note on characters of, DUCLOUX (114) pp. 352-354.

The parasites known as *Coccidioides (immitis and pyogenes)* Rixf. & Gilch. are not Sporozoa, but pathogenic Fungi (moulds), OPHÜLS (327) pp. 443-485, pls. 34-38.

(c) Hæmosporidia:—

Hæmosporidia: classification of all known forms in 3 genera, "Hæmameba," *Piroplasma*, and *Hæmogregarina*; lists of all known species, with remarks, LAVERAN (240) pp. 809-817.

Cysts and sporozoites of a Hæmosporidian, (probably phases in the life-cycle of a Hæmogregarine of *Testudo*) described in a tick (*Hyalomma*), LAVERAN & NÈGRE (244) pp. 964-966, 6 figg.

A new Hæmatozoon, probably allied to *Piroplasma*, described from moles by GRAHAM-SMITH (163) pp. 453-459, pls. 13 & 14.

"Hæmamæba" *danilewskyi* var. *hirundinis* n. var., occurrence and diagnostic character, SERGENT (436) p. 57, 1 fig.; "*H.* *smithi* n. sp.", occurrence and description, leucocytic habitat noted, LAVERAN & LUGET (242) pp. 674-676, 5 figg.; "*H.* *testudinis* n. sp.", occurrence and diagnosis, LAVERAN (238) pp. 176-178, 5 figg.; "*H.* n. sp., [probably a *Plasmodium*], from an Annam squirrel, described, VASSAL (494) pp. 350 & 351, and (495) pp. 224-231, pl. 10; "*H.* *vassali* n. sp.", proposed for Vassal's parasite, just mentioned, LAVERAN (240) p. 810.

Hæmocystidium sinondi, remarks on, CASTELLANI & WILLEY (66) pp. 387 & 388, pl. 24, fig. 6.

Hæmogregarina balfouri n. sp., interesting occurrence in a Mammal and short description, LAVERAN (227) pp. 295-298, 9 text-figg.; *H. balfouri* [= *H. jacuti*], the author stupidly naming it in addition, though knowing Laveran had named it, occurrence in a gerboa and also (or a closely allied form) in the leucocytes of the rat, described, BALFOUR (7) pp. 241-244, 8 figg.; *H. berestneffi* n. sp., name proposed for Berestneff's parasite of Indian frogs (Zool. Rec. 1903, No. 14), CASTELLANI and WILLEY (66) p. 397; *H. bothi* n. sp., occurrence and diagnosis, LEBAILLY (247) p. 304; *H. catesbeianæ* n. sp., occurrence and description, STEBBINS (469) pp. 55-62, 2 pls.; *H. gerbilli* n. sp., occurrence in a Mammal, morphology, and alleged phases of development in a louse, described, CHRISTOPHERS (86) 15 pp., 1 pl.; *H. magna*, note on karyolytic action of, and degenerative forms of, SERGENT (438) p. 671, 5 figg.; *H. mirabilis*, pp. 391-394, pl. 24, fig. 8, *H. nicoria*, pp. 389-391, pl. 24, fig. 7, remarks on, CASTELLANI & WILLEY (66); *H. neireti* n. sp., p. 174, figg. 7-9, *H. theileri* n. sp., p. 172, occurrence and diagnostic features, LAVERAN (236); *H. varani* n. sp., occurrence and diagnosis, LAVERAN (237) pp. 175 & 176, 6 figg.; *H. sp.* (perhaps new, perhaps *H. tunisiensis*) from African toads, note on morphology of, STEPHENS (473) pp. 115-117.

Karyolysus clamatae n. sp., from *Rana clamata*, extra- and intra-corporeal phases of, described, STEBBINS (468) pp. 315-318, 2 pls.

Lankesterella tritonis n. sp., account of trophic and schizogonic phases, FANTHAM (126) pp. 257-263, 17 figg.

"*Leucocytozoön*" *canis* n. sp. (probably not an ordinary Hæmogregarine) from the white blood-corpuscles of dogs, notes on, BENTLEY (20) p. 988, 2 figg., and JAMES (190) pp. 1-12, 1 pl.

Malarial parasite, occurrence of a gregariniform (crescentic) phase in, recalling a Hæmogregarine, BILLET (25) pp. 720-722.

Piroplasma bigeminum, curious developmental stages in ticks (*Rhipicephalus*, *Hyalomma*) alleged, KOCH (214) pp. 1866 & 1867, text-figg. 4-13; *P. canis*, morphology and multiplicative stages of, described, NUTTALL & GRAHAM-SMITH (325) pp. 237-249, pl. 9; *P. (Leishmania) donovani*, development of Flagellate phases in, in cultures, CHATTERJEE (80) p. 16, pls. 1 & 2, CHRISTOPHERS (85) 14 pp., 1 pl., and LEISHMAN & STATHAM (253) pp. 321-334, 1 pl., 2 text-figg.; *P. d.*, notes on morphology of, DONOVAN (105) pp. 155 & 156; *P. equi*, pls. 1 & 2, *P. bovis*, pl. 3, figg. 13 & 14, *P. canis*, pl. 3, figg. 11 & 12, different morphological phases of, described, BOWHILL (37) pp. 10 & 11; *P. parvum* n. sp., much smaller than other known species, causing East African Coast fever, notes on, THEILER (479) p. 470, pl. 1, fig. 1, and id. (480) pp. 599-601; *P. tropicum* (the parasites of Delhi boil), notes on, and good figures of, JAMES (191) pp. 6-8, fig. 2, pl. 1.

2. ENDOSPORA (NEOSPORIDIA).

(a) Myxosporidia:—

Myxosporidia from fish in the rivers and lakes of the French Alps, notes on, CÉPÈDE (77) pp. 905-913.

Branchiophaga n. g. *alosicida* n. sp., a new Myxosporidian parasite from the branchial tissue of *Alosa* *frinta*, account of, MAZZARELLI (287) pp. 227-229; brief notice of same, id. (286) pp. 71 & 72.

Chloromyxum protei n. sp., occurrence and diagnosis, JOSEPH (205) pp. 450 & 451.

Glugea and *Nosema*; these generic names both retained and used for different types, in one of which the sporont (pansporoblast) is poly-porous (type: *Glugea anomala*), and in the other it is monosporous (type: *Nosema bombycis*), PEREZ (341); *G. stempelli* n. sp., from *Balanus amphitrites*, briefly described, id. (343) pp. 150 & 151.

Henneguya légeri n. sp., occurrence and diagnosis, CÉPÈDE (77) p. 911; *H. nüsslini* n. sp., occurrence, cysts and spores described, SCHUBERG & SCHRÖDER (420) pp. 56-59, pl. 3, figg. 10-15.

Myxidium barbatulae n. sp., occurrence and diagnosis, CÉPÈDE (77) p. 912.

Myxobolus neurobius n. sp., from nervous system of trout, cysts and spores described, SCHUBERG & SCHRÖDER (420) pp. 49-56, pl. 3, figg. 1-9; *M.* [apparently really *Henneguya*] sp., occurrence and notes, LINTON (265) pp. 366, 382, 390, pl. 8, figg. 55 & 56.

Myxocystis mrazeeki n. sp., occurrence, general description, and structure of spores, HESSE (177) pp. 914-916, also id. (179) pp. 12-14, 9 text-figg. *Nosema* [see also under *Glugea*]; *N. pulvis* n. sp., from *Carcinus moenas*, developmental features noted, PEREZ (341) pp. 146-148; *N. p.*, effect of, on host, id. (342), pp. 148-150; *N. p.*, a condition of diffuse infiltration, and spores in, described, id. (344) pp. 11-14, text-figg. 12 & 13; *N. longifilum* n. sp., p. 918, *N. vayssierei* n. sp., p. 917, occurrence and diagnoses, HESSE (178).

Thelohania cepedei n. sp., occurrence and diagnosis, HESSE (178) p. 919; *T. mœnadicis*, schizogony and sporogony in, fully described, PEREZ (344) pp. 2-11, text-figg. 1-11.

(b) **Actinomyxidia:**—

Sphaeractinomyxon stolci, detailed account of development, spore-formation, and relationships of, CAULLERY & MESNIL (72) pp. 272–308, pl. 15, 4 text-figg.

(c) **Sarcosporidia:**—

A *Sarcosporidium* [*Sarcocystis*], from a monkey, note on, DE KORTÉ (218) pp. 451 & 452, pl. 12.

Sarcocystis tenella, note on occurrence and spores of, METTAM (297) p. 273.

(d) **Haplosporidia:**—

Haplosporidia: general account of forms to be included in the order, or which are closely allied to it; relationships discussed, CAULLERY & MESNIL (71). [See II. F.]

Bertramia asperospora, p. 132, pl. 12, figg. 100–105, *B. capitellæ*, p. 131, pl. 12, figg. 87–99, remarks on, CAULLERY & MESNIL (71).

Celosporidium blattellæ n. sp., occurrence and description, CRAWLEY (93) pp. 158–161, 6 text-figg.; *C. chydoricola*, p. 142, pl. 12, figg. 76–86, remarks on, CAULLERY & MESNIL (71).

Haplosporidium marchouxi n. sp., p. 581, text-fig. 4, *H. potamillæ* n. sp., p. 582, fig. 5, *H. vejvodskii* n. sp., p. 581, fig. 3, occurrence and diagnoses, CAULLERY & MESNIL (67); *H. heterocirri*, p. 108, pl. 11, figg. 1–15, *H. marchouxi*, p. 114, pl. 11, figg. 30–43, *H. potamillæ*, p. 117, pl. 11, figg. 44 & 45, *H. scolopli*, p. 111, pl. 11, fig. 16–29, *H. vejvodskii*, p. 118, pl. 12, fig. 46–56, fuller account of, id. (71).

Ichthyosporidium n. g. for *I. gasterophilum* n. sp., p. 640, and *I. phymogenes* n. sp., p. 641, occurrence and remarks, CAULLERY & MESNIL (68); fuller accounts of, id. (71), *I. g.*, p. 137, pl. 13, figg. 106–116, and *I. p.*, p. 139, pl. 13, figg. 117–124.

Rhinosporidium n. g. *kinealyi* n. sp., parasitic in man, general account of, MINCHIN & FANTHAM (298) pp. 521–532, pls. 30 & 31.

Urosporidium n. g. *fuliginosum* n. sp. occurrence and diagnosis, CAULLERY & MESNIL (67) p. 582, text-fig 6; fuller account of, id. (71) p. 122, pl. 12, figg. 57–75.

Allied to Haplosporidia:—

Blastulidium paedophthorum, multiplication in, by a budding-like process, PEREZ (340) pp. 1027–1029, 2 figg. [The figures rather point to the vegetative nature of this organism.]

Scheviakovella n. g. for “*Gluigea*” *schmeili* L. Pfeiffer, Scheviakoff’s “endoparasitic tubes” of *Cyclops*; remarks on and affinities of, discussed, CAULLERY & MESNIL (71) p. 156.

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Note on occurrence of *Lymphocystis johnstonii*, and good photograph of severely-infected flounder, JOHNSTONE (201) p. 292, pl. 6, text-fig. 9.

A new Sporozoan, *Microklossia* n. g. *prima* n. sp., from various Russian Lepidoptera; developmental phases described, including unusual method of sporulation, KRASSILSTSCHIK (219) pp. 656 & 657, (220) pp. 736 & 737, and (221) pp. 737–739.

Doubtful Sporozoa.—*Cytoryctes* [spelt by the author, variously, *Cytorhyctes* and *Cytorrhctes*!] *vaccinae*, otherwise known as “Guarnieri’s bodies,” the alleged parasites of small-pox and vaccinia, lengthy account of, SIEGEL (445) 34 pp., 3 pls.; *C. scarlatinae* n. sp., a similar form supposed to cause scarlet-fever, id. (446) 14 pp., 1 pl.; and *C. luisi* n. sp., supposed to be the causal agent of syphilis, id. (447) 15 pp. 2 pls.

D. MASTIGOPHORA.

1. FLAGELLATA (EUFLAGELLATA).

(a) Lissoflagellata :—

- Calonympha* n. g. *grassii* n. sp., remarkable form, parasitic in termites, with complex cytological details, FOA (141) pp. 542–545, 2 text-figg.
- Devescovina* n. g. *striata* n. sp., from termites, morphology briefly described, FOA (141) pp. 545 & 546, text-fig. 3.
- Dinema* (probably) n. sp., occurrence and note on cytological peculiarities, PENARD (339) p. 459.
- Dinobryon utriculus*, occurrence of peculiar form of, LEMMERMANN (254) p. 149, pl. 4, figg. 5–7.
- Dunaliella* n. g. *salina* n. sp., occurrence and description, TEODORESCO (478) pp. 215–232, pls. 8 & 9, 5 text-figg.; *D. s.*, saline springs, Cagliari, general account of, HAMBURGER (172) pp. 111–125, pl. 6, figg. 1–17, 7 text-figg.
- Herpetomonas bombycis* n. sp., occurrence and morphological characters, LEVADITI (260) pp. 631–634, 11 figg.
- Lamblia* [= *Megastoma*] *intestinalis*, occurrence and note, CASTELLANI (65) p. 1286, fig. 2.
- Lepocinclus marssonii* n. sp., p. 151, pl. 4, fig. 9, *L. ovum* var. *punctostriata* n. var., p. 150, pl. 4, fig. 9, occurrence and diagnoses, LEMMERMANN (254).
- Pseudospora volvocis*, general account of biology and life-history, ROBERTSON (379) pp. 213–230, pl. 12.
- “*Spirocheta*” *pallida* n. sp., occurrence in syphilitic lesions and description, SCHAUDINN & HOFFMANN (406) pp. 527–530, 2 text-figg.; “*S.*” p. (= *Trypanosoma luis*) trypaniform phases in the life-cycle of, also sexual forms, described, KRZYSZTALOWICZ & SIEDLECKI (223) pp. 713–728, pl. 13.
- Spironema* n. g. (for “*Spirocheta*”) *pallidum*, as distinct from true *Spirochetae*, proposed by VUILLEMEN (498) pp. 1567 & 1568. [Relinquished, see under *Treponema*.]
- Trachelomonas*, classification of the different species, founded on the characters of the lorica, p. 668, *T. verrucosa*, p. 669, pl. 41, fig. 2, *T. rugulosa*, p. 669, pl. 41, figg. 7 & 8, *T. stokesiana* n. sp., p. 670, pl. 41, figg. 4 & 5, *T. armata*, p. 672, pl. 41, figg. 9–11, *T. crebea*, p. 672, pl. 41, fig. 1, *T. obtusa* n. sp., p. 673, pl. 41, fig. 3, *T. horrida* n. sp., p. 674, pl. 41, fig. 6, and various other spp., described, PALMER (329); *T. affinis* var. *levis* n. var., occurrence and diagnosis, LEMMERMANN (255) p. 157, pl. 4, fig. 8; *T. bulla* var. *regularis* n. var., p. 165, pl. 11, fig. 6, *T. oblonga* var. *truncata*, p. 165, pl. 11, figg. 7 & 8, *T. volzi* n. sp., p. 166, pl. 11, fig. 9, occurrence and remarks on, LEMMERMANN (257); *T. ensifera* n. sp., p. 31, pl. 1, figg. 24–27, *T. annulata* n. sp., p. 30, pl. 1, fig. 23, *T. hispida* var. *verrucosa* n. var., p. 30, pl. 1, fig. 28, var. *ovalis* n. var., p. 30, pl. 1, fig. 29, from Paraguay, described, v. DADAY (99).
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CORRIGENDA.

- INSECTA, p. 86, line 8 from bottom, for corei read cerci.
 " p. 160, " 12 " " for *Danacaca* read *Danacea*.

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